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Desnoyers, Luc  
Eaton, Dan l.  
Ferrara, Napoleone  
Fong, Sherman  
Gao, Wei-Qiang  
Goddard, Audrey  
Godowski, Paul J.  
Grimaldi, Christopher J.  
Gurney, Austin L.  
Hillan, Kenneth J.  
Pan, James  
Paoni, Nicholas F.

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Leu Gly Leu Arg Lys Glu Phe Glu Glu	Ala Arg Lys Trp Val Ser	
305	310	315
Lys Lys Leu His Phe Glu Lys Asp Val	Asp Val Asn Leu Phe Glu	
320	325	330
Ser Thr Ile Arg Ile Leu Gly Gly Leu	Leu Ser Ala Tyr His Leu	
335	340	345
Ser Gly Asp Ser Leu Phe Leu Arg Lys	Ala Glu Asp Phe Gly Asn	
350	355	360
Arg Leu Met Pro Ala Phe Arg Thr Pro	Ser Lys Ile Pro Tyr Ser	
365	370	375
Asp Val Asn Ile Gly Thr Gly Val Ala	His Pro Pro Arg Trp Thr	
380	385	390
Ser Asp Ser Thr Val Ala Glu Val Thr	Ser Ile Gln Leu Glu Phe	
395	400	405
Arg Glu Leu Ser Arg Leu Thr Gly Asp	Lys Lys Phe Gln Glu Ala	
410	415	420
Val Glu Lys Val Thr Gln His Ile His	Gly Leu Ser Gly Lys Lys	
425	430	435
Asp Gly Leu Val Pro Met Phe Ile Asn	Thr His Ser Gly Leu Phe	
440	445	450
Thr His Leu Gly Val Phe Thr Leu Gly	Ala Arg Ala Asp Ser Tyr	
455	460	465
Tyr Glu Tyr Leu Leu Lys Gln Trp Ile	Gln Gly Gly Lys Gln Glu	
470	475	480
Thr Gln Leu Leu Glu Asp Tyr Val Glu	Ala Ile Glu Gly Val Arg	
485	490	495
Thr His Leu Leu Arg His Ser Glu Pro	Ser Lys Leu Thr Phe Val	
500	505	510
Gly Glu Leu Ala His Gly Arg Phe Ser	Ala Lys Met Asp His Leu	
515	520	525
Val Cys Phe Leu Pro Gly Thr Leu Ala	Leu Gly Val Tyr His Gly	
530	535	540
Leu Pro Ala Ser His Met Glu Leu Ala	Gln Glu Leu Met Glu Thr	
545	550	555
Cys Tyr Gln Met Asn Arg Gln Met Glu	Thr Gly Leu Ser Pro Glu	
560	565	570
Ile Val His Phe Asn Leu Tyr Pro Gln	Pro Gly Arg Arg Asp Val	



	575		580		585
Glu Val Lys Pro	Ala Asp Arg His Asn	Leu Leu Arg Pro	Glu Thr		
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Val Glu Ser Leu	Phe Tyr Leu Tyr Arg	Val Thr Gly Asp Arg	Lys		
	605		610		615
Tyr Gln Asp Trp	Gly Trp Glu Ile Leu	Gln Ser Phe Ser Arg	Phe		
	620		625		630
Thr Arg Val Pro	Ser Gly Gly Tyr Ser	Ser Ile Asn Asn Val	Gln		
	635		640		645
Asp Pro Gln Lys	Pro Glu Pro Arg Asp	Lys Met Glu Ser Phe	Phe		
	650		655		660
Leu Gly Glu Thr	Leu Lys Tyr Leu Phe	Leu Leu Phe Ser Asp	Asp		
	665		670		675
Pro Asn Leu Leu	Ser Leu Asp Ala Tyr	Val Phe Asn Thr Glu	Ala		
	680		685		690
His Pro Leu Pro	Ile Trp Thr Pro Ala				
	695				

<210> 13  
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 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 13  
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<210> 14  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 14  
 ccataccttct tcccagacag gccg 24

<210> 15  
 <211> 44  
 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 15



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<210> 16

<211> 1524

<212> DNA

<213> Homo sapiens

<400> 16

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gcgcagctgc cctgggagga cggcaggtcc ggggttgctct ccggcggcct 150  
ccctcggaag tgttcctctt tccacctgtt cgtggcctgc ctctcgttgg 200  
gctttctctc cctactctgg ctgcagctca gctgctctgg ggacgtggcc 250  
cgggcagtca ggggacaagg gcaggagacc tcgggccctc ccggtgcctg 300  
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cccaccgcct ggcagtgtct gtgcccttcc gcgaacgctt cgaggagctc 400  
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gcaccacatc tacgtgctca accaggtgga ccacttcagg ttcaaccggg 500  
cagcgctcat caacgtgggc ttcttgaga gcagcaacag caccgactac 550  
attgccatgc acgacgttga cctgctccct ctcaacgagg agctggacta 600  
tggttttctt gaggtgaggc ccttccacgt ggccctcccg gagctccacc 650  
ctctctacca ctacaagacc tatgtcggcg gcacctctgt gctctccaag 700  
cagcactacc ggctgtgcaa tgggatgtcc aaccgcttct ggggctgggg 750  
ccgcgaggac gacgagttct accggcgcat taaggagct gggctccagc 800  
ttttccgccc ctcggaatc acaactgggt acaagacatt tcgccacctg 850  
catgaccag cctggcgga gagggaccag aagcgcatcg cagctcaaaa 900  
acaggagcag ttcaagggtg acagggagg aggcctgaac actgtgaagt 950  
accatgtggc ttcccgact gccctgtctg tgggcggggc ccctgcact 1000  
gtctcaaca tcatgttga ctgtgacaag accgccacac cctggtgcac 1050  
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ggccgccaag gcaggcttgg gctgggccag gacacgtggg gtgcctggga 1250



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 aaaaaaaaaa aaaaaaaaaa aaaa 1524

<210> 17  
 <211> 327  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> sig\_peptide  
 <222> 1-42  
 <223> Signal peptide.

<220>  
 <221> misc\_feature  
 <222> 19-25,65-71,247-253,285-291,303-310  
 <223> N-myristoylation site.

<220>  
 <221> misc\_feature  
 <222> 27-31  
 <223> cAMP- and cGMP-dependent protein kinase phosphorylation site.

<220>  
 <221> TRANSMEM  
 <222> 29-49  
 <223> Transmembrane domain (type II).

<220>  
 <221> misc\_feature  
 <222> 154-158  
 <223> N-glycosylation site.

<220>  
 <221> misc\_feature  
 <222> 226-233  
 <223> Tyrosine kinase phosphorylation site.

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 1 5 10 15  
 Gly Arg Ser Gly Leu Leu Ser Gly Gly Leu Pro Arg Lys Cys Ser  
 20 25 30  
 Val Phe His Leu Phe Val Ala Cys Leu Ser Leu Gly Phe Phe Ser  
 35 40 45



Leu	Leu	Trp	Leu	Gln	Leu	Ser	Cys	Ser	Gly	Asp	Val	Ala	Arg	Ala		
				50					55					60		
Val	Arg	Gly	Gln	Gly	Gln	Glu	Thr	Ser	Gly	Pro	Pro	Arg	Ala	Cys		
				65					70					75		
Pro	Pro	Glu	Pro	Pro	Pro	Glu	His	Trp	Glu	Glu	Asp	Ala	Ser	Trp		
				80					85					90		
Gly	Pro	His	Arg	Leu	Ala	Val	Leu	Val	Pro	Phe	Arg	Glu	Arg	Phe		
				95					100					105		
Glu	Glu	Leu	Leu	Val	Phe	Val	Pro	His	Met	Arg	Arg	Phe	Leu	Ser		
				110					115					120		
Arg	Lys	Lys	Ile	Arg	His	His	Ile	Tyr	Val	Leu	Asn	Gln	Val	Asp		
				125					130					135		
His	Phe	Arg	Phe	Asn	Arg	Ala	Ala	Leu	Ile	Asn	Val	Gly	Phe	Leu		
				140					145					150		
Glu	Ser	Ser	Asn	Ser	Thr	Asp	Tyr	Ile	Ala	Met	His	Asp	Val	Asp		
				155					160					165		
Leu	Leu	Pro	Leu	Asn	Glu	Glu	Leu	Asp	Tyr	Gly	Phe	Pro	Glu	Ala		
				170					175					180		
Gly	Pro	Phe	His	Val	Ala	Ser	Pro	Glu	Leu	His	Pro	Leu	Tyr	His		
				185					190					195		
Tyr	Lys	Thr	Tyr	Val	Gly	Gly	Ile	Leu	Leu	Leu	Ser	Lys	Gln	His		
				200					205					210		
Tyr	Arg	Leu	Cys	Asn	Gly	Met	Ser	Asn	Arg	Phe	Trp	Gly	Trp	Gly		
				215					220					225		
Arg	Glu	Asp	Asp	Glu	Phe	Tyr	Arg	Arg	Ile	Lys	Gly	Ala	Gly	Leu		
				230					235					240		
Gln	Leu	Phe	Arg	Pro	Ser	Gly	Ile	Thr	Thr	Gly	Tyr	Lys	Thr	Phe		
				245					250					255		
Arg	His	Leu	His	Asp	Pro	Ala	Trp	Arg	Lys	Arg	Asp	Gln	Lys	Arg		
				260					265					270		
Ile	Ala	Ala	Gln	Lys	Gln	Glu	Gln	Phe	Lys	Val	Asp	Arg	Glu	Gly		
				275					280					285		
Gly	Leu	Asn	Thr	Val	Lys	Tyr	His	Val	Ala	Ser	Arg	Thr	Ala	Leu		
				290					295					300		
Ser	Val	Gly	Gly	Ala	Pro	Cys	Thr	Val	Leu	Asn	Ile	Met	Leu	Asp		
				305					310					315		
Cys	Asp	Lys	Thr	Ala	Thr	Pro	Trp	Cys	Thr	Phe	Ser					
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<210> 18
<211> 23
<212> DNA
<<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 18
gcgaacgctt cgaggagtcc tgg 23
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```
<210> 19
<211> 24
<212> DNA
<213> Artificial Sequence
```

<220>  
<223> Synthetic oligonucleotide probe

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<400> 19
gcagtgcggg aagccacatg gtac 24
```

```
<210> 20
<211> 46
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 20
cttcctgagc aggaagaaga tccggcacca catctacgtg ctcaac 46
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<210> 21
<211> 494
<212> DNA
<213> Homo sapiens
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gactggtcgg tgcccagaaa gtctcttctg ccactgacgc ccccatcagg 150
gattgggcct tctttccccc ttctttctg tgtctcctgc ctcatcggcc 200
tgccatgacc tgcagccaag ccagccccg tggggaaggg gagaaagtgg 250
gggatggcta agaaagctgg gagataggga acagaagagg gtagtgggtg 300
ggctaggggg gctgccttat ttaaagtggg tgtttatgat tcttatacta 350
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cctgtgttca atgtttgtaa agattgttct gtgtaaatat gtctttataa 450
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<400> 23
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ggctccgggg cggcccgcta ggccagtgcg ccgcgcgctc cccgcaggc 200
cccggcccg cgcgcgcgagc caccggacg ccggcggggc cgcgcgcagc 250
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tgggcggccc cgaggggctg gcagggcggc gggcgccgcc gagggcaagg 400
tggtgtgcag cagcctggaa ctgcgcagg tcctgcccc agatactctg 450
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atttg	ttcattatct	caaggaactt	ttgattatct	tgcgtcatta	750
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qctcacq	attcaacata	ttcacccaat	attgctctgg	aagcttatgt	1850



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agcaaaatga	aagcattttt	actgattttt	aaaattgggtg	ctttagatat	2600
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<211> 616

<212> PRT

<213> Homo sapiens

<220>

<221> sig peptide

 $\langle 222 \rangle \quad 1-\bar{3}\bar{3}$ 

<223> Signal peptide.

<220>

<221> TRANSMEM

<222> 13-40

<223> Transmembrane domain (type II).



<400> 24

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Gly	Gly	Gly	Gly	Gly	Ala	Ala	Ala	Leu	Pro	Ala	Gly	Cys	Lys	His	35	40	45	
Asp	Gly	Arg	Pro	Arg	Gly	Ala	Gly	Arg	Ala	Ala	Gly	Ala	Ala	Glu	50	55	60	
Gly	Lys	Val	Val	Cys	Ser	Ser	Leu	Glu	Leu	Ala	Gln	Val	Leu	Pro	65	70	75	
Pro	Asp	Thr	Leu	Pro	Asn	Arg	Thr	Val	Thr	Leu	Ile	Leu	Ser	Asn	80	85	90	
Asn	Lys	Ile	Ser	Glu	Leu	Lys	Asn	Gly	Ser	Phe	Ser	Gly	Leu	Ser	95	100	105	
Leu	Leu	Glu	Arg	Leu	Asp	Leu	Arg	Asn	Asn	Leu	Ile	Ser	Ser	Ile	110	115	120	
Asp	Pro	Gly	Ala	Phe	Trp	Gly	Leu	Ser	Ser	Leu	Lys	Arg	Leu	Asp	125	130	135	
Leu	Thr	Asn	Asn	Arg	Ile	Gly	Cys	Leu	Asn	Ala	Asp	Ile	Phe	Arg	140	145	150	
Gly	Leu	Thr	Asn	Leu	Val	Arg	Leu	Asn	Leu	Ser	Gly	Asn	Leu	Phe	155	160	165	
Ser	Ser	Leu	Ser	Gln	Gly	Thr	Phe	Asp	Tyr	Leu	Ala	Ser	Leu	Arg	170	175	180	
Ser	Leu	Glu	Phe	Gln	Thr	Glu	Tyr	Leu	Leu	Cys	Asp	Cys	Asn	Ile	185	190	195	
Leu	Trp	Met	His	Arg	Trp	Val	Lys	Glu	Lys	Asn	Ile	Thr	Val	Arg	200	205	210	
Asp	Thr	Arg	Cys	Val	Tyr	Pro	Lys	Ser	Leu	Gln	Ala	Gln	Pro	Val	215	220	225	
Thr	Gly	Val	Lys	Gln	Glu	Leu	Leu	Thr	Cys	Asp	Pro	Pro	Leu	Glu	230	235	240	
Leu	Pro	Ser	Phe	Tyr	Met	Thr	Pro	Ser	His	Arg	Gln	Val	Val	Phe	245	250	255	
Glu	Gly	Asp	Ser	Leu	Pro	Phe	Gln	Cys	Met	Ala	Ser	Tyr	Ile	Asp	260	265	270	
Gln	Asp	Met	Gln	Val	Leu	Trp	Tyr	Gln	Asp	Gly	Arg	Ile	Val	Glu	275	280	285	



Thr Asp Glu Ser	Gln Gly Ile Phe Val	Glu Lys Asn Met	Ile His
290		295	300
Asn Cys Ser Leu	Ile Ala Ser Ala Leu	Thr Ile Ser Asn	Ile Gln
305		310	315
Ala Gly Ser Thr	Gly Asn Trp Gly Cys	His Val Gln Thr	Lys Arg
320		325	330
Gly Asn Asn Thr	Arg Thr Val Asp Ile	Val Val Leu Glu	Ser Ser
335		340	345
Ala Gln Tyr Cys	Pro Pro Glu Arg Val	Val Asn Asn Lys	Gly Asp
350		355	360
Phe Arg Trp Pro	Arg Thr Leu Ala Gly	Ile Thr Ala Tyr	Leu Gln
365		370	375
Cys Thr Arg Asn	Thr His Gly Ser Gly	Ile Tyr Pro Gly	Asn Pro
380		385	390
Gln Asp Glu Arg	Lys Ala Trp Arg Arg	Cys Asp Arg Gly	Gly Phe
395		400	405
Trp Ala Asp Asp	Asp Tyr Ser Arg Cys	Gln Tyr Ala Asn	Asp Val
410		415	420
Thr Arg Val Leu	Tyr Met Phe Asn Gln	Met Pro Leu Asn	Leu Thr
425		430	435
Asn Ala Val Ala	Thr Ala Arg Gln Leu	Leu Ala Tyr Thr	Val Glu
440		445	450
Ala Ala Asn Phe	Ser Asp Lys Met Asp	Val Ile Phe Val	Ala Glu
455		460	465
Met Ile Glu Lys	Phe Gly Arg Phe Thr	Lys Glu Glu Lys	Ser Lys
470		475	480
Glu Leu Gly Asp	Val Met Val Asp Ile	Ala Ser Asn Ile	Met Leu
485		490	495
Ala Asp Glu Arg	Val Leu Trp Leu Ala	Gln Arg Glu Ala	Lys Ala
500		505	510
Cys Ser Arg Ile	Val Gln Cys Leu Gln	Arg Ile Ala Thr	Tyr Arg
515		520	525
Leu Ala Gly Gly	Ala His Val Tyr Ser	Thr Tyr Ser Pro	Asn Ile
530		535	540
Ala Leu Glu Ala	Tyr Val Ile Lys Ser	Thr Gly Phe Thr	Gly Met
545		550	555
Thr Cys Thr Val	Phe Gln Lys Val Ala	Ala Ser Asp Arg	Thr Gly
560		565	570



Leu Ser Asp Tyr Gly Arg Arg Asp Pro Glu Gly Asn Leu Asp Lys  
575 580 585

Gln Leu Ser Phe Lys Cys Asn Val Ser Asn Thr Phe Ser Ser Leu  
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Ala Leu Lys Val Cys Tyr Ile Leu Gln Ser Phe Lys Thr Ile Tyr  
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Ser

<210> 25

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 25

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<212> DNA

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<210> 27

<211> 50

<212> DNA

<213> Artificial Sequence

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<400> 27

gtaaaggaga agaacatcac ggtacgggat accagggtgtg tttatcctaa 50

<210> 28

<211> 683

<212> DNA

<213> Homo sapiens

<400> 28

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gcagaggctt cgtgaaggag ttatcagaga cattgagagg caaattcgga 150







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Ala Cys Tyr Ala	Ala Leu Phe Cys Leu	Ser Ala Ser Ile Ile Tyr
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125	130	135
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140	145	150
Tyr Ala Thr Glu	Val Ala Trp Thr Arg	Ala Arg Pro Gly Glu Ile
155	160	165
Thr Gly Tyr Met	Ala Thr Val Pro Gly	Leu Leu Lys Val Leu Glu
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Thr Phe Val Ala	Cys Ile Ile Phe Ala	Phe Ile Ser Asp Pro Asn
185	190	195
Leu Tyr Gln His	Gln Pro Ala Leu Glu	Trp Cys Val Ala Val Tyr
200	205	210
Ala Ile Cys Phe	Ile Leu Ala Ala Ile	Ala Ile Leu Leu Asn Leu
215	220	225
Gly Glu Cys Thr	Asn Val Leu Pro Ile	Pro Phe Pro Ser Phe Leu
230	235	240
Ser Gly Leu Ala	Leu Leu Ser Val Leu	Leu Tyr Ala Thr Ala Leu
245	250	255
Val Leu Trp Pro	Leu Tyr Gln Phe Asp	Glu Lys Tyr Gly Gly Gln
260	265	270
Pro Arg Arg Ser	Arg Asp Val Ser Cys	Ser Arg Ser His Ala Tyr
275	280	285
Tyr Val Cys Ala	Trp Asp Arg Arg Leu	Ala Val Ala Ile Leu Thr
290	295	300
Ala Ile Asn Leu	Leu Ala Tyr Val Ala	Asp Leu Val His Ser Ala
305	310	315
His Leu Val Phe	Val Lys Val	
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<211> 3680

<212> DNA

<213> Homo sapiens

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<210> 33

<211> 335

<212> PRT

<213> Homo sapiens

<400> 33

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Phe	Gly	Thr	Val	Ser	Cys	Glu	Tyr	Met	Leu	Gly	Ser	Pro	Leu	Ser
				20					25				30	
Ser	Leu	Ala	Gln	Val	Asn	Leu	Ser	Pro	Phe	Ser	His	Pro	Lys	Val
				35					40				45	
His	Met	Asp	Pro	Asn	Tyr	Cys	His	Pro	Ser	Thr	Ser	Leu	His	Leu
				50					55				60	
Cys	Ser	Leu	Ala	Trp	Ser	Phe	Thr	Arg	Leu	Leu	His	Pro	Pro	Leu
				65					70				75	
Ser	Pro	Gly	Ile	Ser	Gln	Val	Val	Lys	Asp	His	Val	Thr	Lys	Pro
				80					85				90	
Thr	Ala	Met	Ala	Gln	Gly	Arg	Val	Ala	His	Leu	Ile	Glu	Trp	Lys
				95					100				105	
Gly	Trp	Ser	Lys	Pro	Ser	Asp	Ser	Pro	Ala	Ala	Leu	Glu	Ser	Ala
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<210> 34

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 34

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$\langle 210 \rangle$	40
$\langle 211 \rangle$	2084



<212> DNA

<213> Homo sapiens

<400> 40

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caacgttggt ttattcactt ctatcgggga gccatggaaa agaaaatcaa 400  
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<210> 41  
 <211> 334  
 <212> PRT  
 <213> Homo sapiens

<400> 41  
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 Thr Thr Gln Asn Ile Ala Glu Val Phe Lys Thr Met Glu Asn Lys  
 35 40 45  
 Pro Ile Ser Leu Glu Ser Glu Ala Asn Leu Asn Ser Asp Lys Glu  
 50 55 60  
 Asn Ile Thr Thr Ser Asn Leu Lys Ala Ser His Ser Pro Pro Leu  
 65 70 75  
 Asn Leu Pro Asn Asn Ser His Gly Ile Thr Asp Phe Ser Ser Asn  
 80 85 90  
 Ser Ser Ala Glu His Ser Leu Gly Ser Leu Lys Pro Thr Ser Thr  
 95 100 105



Ile Ser Thr Ser	Pro Pro Leu Ile His Ser Phe Val Ser Lys Val	110	115	120
Pro Trp Asn Ala	Pro Ile Ala Asp Glu Asp Leu Leu Pro Ile Ser	125	130	135
Ala His Pro Asn	Ala Thr Pro Ala Leu Ser Ser Glu Asn Phe Thr	140	145	150
Trp Ser Leu Val	Asn Asp Thr Val Lys Thr Pro Asp Asn Ser Ser	155	160	165
Ile Thr Val Ser	Ile Leu Ser Ser Glu Pro Thr Ser Pro Ser Val	170	175	180
Thr Pro Leu Ile	Val Glu Pro Ser Gly Trp Leu Thr Thr Asn Ser	185	190	195
Asp Ser Phe Thr	Gly Phe Thr Pro Tyr Gln Glu Lys Thr Thr Leu	200	205	210
Gln Pro Thr Leu	Lys Phe Thr Asn Asn Ser Lys Leu Phe Pro Asn	215	220	225
Thr Ser Asp Pro	Gln Lys Glu Asn Arg Asn Thr Gly Ile Val Phe	230	235	240
Gly Ala Ile Leu	Gly Ala Ile Leu Gly Val Ser Leu Leu Thr Leu	245	250	255
Val Gly Tyr Leu	Leu Cys Gly Lys Arg Lys Thr Asp Ser Phe Ser	260	265	270
His Arg Arg Leu	Tyr Asp Asp Arg Asn Glu Pro Val Leu Arg Leu	275	280	285
Asp Asn Ala Pro	Glu Pro Tyr Asp Val Ser Phe Gly Asn Ser Ser	290	295	300
Tyr Tyr Asn Pro	Thr Leu Asn Asp Ser Ala Met Pro Glu Ser Glu	305	310	315
Glu Asn Ala Arg	Asp Gly Ile Pro Met Asp Asp Ile Pro Pro Leu	320	325	330
Arg Thr Ser Val				

<210> 42

<211> 1594

<212> DNA

<213> Homo sapiens

<400> 42

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ccctataata aattttactc tatacaaaaaa aaaaaaaaaa aaaa 1594

<210> 43

<211> 263

<212> PRT

<213> Homo sapiens

<400> 43

Met	Val	Lys	Ile	Ala	Phe	Asn	Thr	Pro	Thr	Ala	Val	Gln	Lys	Glu
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Glu	Ala	Arg	Gln	Asp	Val	Glu	Ala	Leu	Leu	Ser	Arg	Thr	Val	Arg
				20					25					30

Thr	Gln	Ile	Leu	Thr	Gly	Lys	Glu	Leu	Arg	Val	Ala	Thr	Gln	Glu
				35					40					45

Lys	Glu	Gly	Ser	Ser	Gly	Arg	Cys	Met	Leu	Thr	Leu	Leu	Gly	Leu
				50					55					60

Ser	Phe	Ile	Leu	Ala	Gly	Leu	Ile	Val	Gly	Gly	Ala	Cys	Ile	Tyr
				65					70					75

Lys	Tyr	Phe	Met	Pro	Lys	Ser	Thr	Ile	Tyr	Arg	Gly	Glu	Met	Cys
				80					85					90

Phe	Phe	Asp	Ser	Glu	Asp	Pro	Ala	Asn	Ser	Leu	Arg	Gly	Gly	Glu
				95					100					105

Pro	Asn	Phe	Leu	Pro	Val	Thr	Glu	Glu	Ala	Asp	Ile	Arg	Glu	Asp
				110					115					120

Asp	Asn	Ile	Ala	Ile	Ile	Asp	Val	Pro	Val	Pro	Ser	Phe	Ser	Asp
				125					130					135

Ser	Asp	Pro	Ala	Ala	Ile	Ile	His	Asp	Phe	Glu	Lys	Gly	Met	Thr
				140					145					150

Ala	Tyr	Leu	Asp	Leu	Leu	Leu	Gly	Asn	Cys	Tyr	Leu	Met	Pro	Leu
				155					160					165

Asn	Thr	Ser	Ile	Val	Met	Pro	Pro	Lys	Asn	Leu	Val	Glu	Leu	Phe
				170					175					180

Gly	Lys	Leu	Ala	Ser	Gly	Arg	Tyr	Leu	Pro	Gln	Thr	Tyr	Val	Val
				185					190					195

Arg	Glu	Asp	Leu	Val	Ala	Val	Glu	Glu	Ile	Arg	Asp	Val	Ser	Asn
				200					205					210

Leu	Gly	Ile	Phe	Ile	Tyr	Gln	Leu	Cys	Asn	Asn	Arg	Lys	Ser	Phe
				215					220					225

Arg	Leu	Arg	Arg	Arg	Asp	Leu	Leu	Leu	Gly	Phe	Asn	Lys	Arg	Ala
-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----	-----



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Val Glu Thr Lys Ile Cys Gln Glu					
	260				

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 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

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 <223> Synthetic oligonucleotide probe

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<220>  
 <223> Synthetic oligonucleotide probe

<400> 45  
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<210> 46  
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<400> 46  
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<210> 47  
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<210> 48  
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<220>

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<400> 48

cacgattccc tccacagcaa ctggg 25

<210> 49

<211> 1969

<212> DNA

<213> Homo sapiens

<400> 49

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Leu Leu Gly Ser Val Pro Ala Thr Asp Ala Arg Ser Val Pro Leu
              20              25              30

Lys Ala Thr Phe Leu Glu Asp Val Ala Gly Ser Gly Glu Ala Glu
              35              40              45

Gly Ser Ser Ala Ser Ser Pro Ser Leu Pro Pro Pro Trp Thr Pro
              50              55              60

Ala Leu Ser Pro Thr Ser Met Gly Pro Gln Pro Thr Thr Leu Gly
              65              70              75

Gly Pro Ser Pro Pro Thr Asn Phe Leu Asp Gly Ile Val Asp Phe

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Phe Arg Gln Tyr	Val Met Leu Ile Ala	Val Val Gly Ser Leu Ala			
	95	100			105
Phe Leu Leu Met	Phe Ile Val Cys Ala	Ala Val Ile Thr Arg Gln			
	110	115			120
Lys Gln Lys Ala	Ser Ala Tyr Tyr Pro	Ser Ser Phe Pro Lys Lys			
	125	130			135
Lys Tyr Val Asp	Gln Ser Asp Arg Ala	Gly Gly Pro Arg Ala Phe			
	140	145			150
Ser Glu Val Pro	Asp Arg Ala Pro Asp	Ser Arg Pro Glu Glu Ala			
	155	160			165
Leu Asp Ser Ser	Arg Gln Leu Gln Ala	Asp Ile Leu Ala Ala Thr			
	170	175			180
Gln Asn Leu Lys	Ser Pro Thr Arg Ala	Ala Leu Gly Gly Gly Asp			
	185	190			195
Gly Ala Arg Met	Val Glu Gly Arg Gly	Ala Glu Glu Glu Glu Lys			
	200	205			210
Gly Ser Gln Glu	Gly Asp Gln Glu Val	Gln Gly His Gly Val Pro			
	215	220			225
Val Glu Thr Pro	Glu Ala Gln Glu Glu	Pro Cys Ser Gly Val Leu			
	230	235			240
Glu Gly Ala Val	Val Ala Gly Glu Gly	Gln Gly Glu Leu Glu Gly			
	245	250			255
Ser Leu Leu Leu	Ala Gln Glu Ala Gln	Gly Pro Val Gly Pro Pro			
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Glu Ser Pro Cys	Ala Cys Ser Ser Val	His Pro Ser Val			
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<210> 51  
 <211> 1734  
 <212> DNA  
 <213> Homo sapiens

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 agacactctg gagagagagg gggctgggca gagatgaagt tccaggggcc 200  
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<210> 52
<211> 440
<212> PRT
<213> Homo sapiens
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				20					25					30		
Thr	Gly	Thr	Asn	Ile	Gly	Glu	Ala	Leu	Gly	His	Gly	Leu	Gly	Asp		
				35					40					45		
Ala	Leu	Ser	Glu	Gly	Val	Gly	Lys	Ala	Ile	Gly	Lys	Glu	Ala	Gly		
				50					55					60		
Gly	Ala	Ala	Gly	Ser	Lys	Val	Ser	Glu	Ala	Leu	Gly	Gln	Gly	Thr		
				65					70					75		
Arg	Glu	Ala	Val	Gly	Thr	Gly	Val	Arg	Gln	Val	Pro	Gly	Phe	Gly		
				80					85					90		
Ala	Ala	Asp	Ala	Leu	Gly	Asn	Arg	Val	Gly	Glu	Ala	Ala	His	Ala		
				95					100					105		
Leu	Gly	Asn	Thr	Gly	His	Glu	Ile	Gly	Arg	Gln	Ala	Glu	Asp	Val		
				110					115					120		
Ile	Arg	His	Gly	Ala	Asp	Ala	Val	Arg	Gly	Ser	Trp	Gln	Gly	Val		
				125					130					135		
Pro	Gly	His	Ser	Gly	Ala	Trp	Glu	Thr	Ser	Gly	Gly	His	Gly	Ile		
				140					145					150		
Phe	Gly	Ser	Gln	Gly	Gly	Leu	Gly	Gly	Gln	Gly	Gln	Gly	Asn	Pro		
				155					160					165		
Gly	Gly	Leu	Gly	Thr	Pro	Trp	Val	His	Gly	Tyr	Pro	Gly	Asn	Ser		
				170					175					180		
Ala	Gly	Ser	Phe	Gly	Met	Asn	Pro	Gln	Gly	Ala	Pro	Trp	Gly	Gln		
				185					190					195		
Gly	Gly	Asn	Gly	Gly	Pro	Pro	Asn	Phe	Gly	Thr	Asn	Thr	Gln	Gly		
				200					205					210		
Ala	Val	Ala	Gln	Pro	Gly	Tyr	Gly	Ser	Val	Arg	Ala	Ser	Asn	Gln		
				215					220					225		
Asn	Glu	Gly	Cys	Thr	Asn	Pro	Pro	Pro	Ser	Gly	Ser	Gly	Gly	Gly		
				230					235					240		



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 260 265 270  
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 275 280 285  
 Ser Gly Gly Ser Ser Gly Gly Ser Ser Gly Asn Ser Gly Gly Ser  
 290 295 300  
 Arg Gly Asp Ser Gly Ser Glu Ser Ser Trp Gly Ser Ser Thr Gly  
 305 310 315  
 Ser Ser Ser Gly Asn His Gly Gly Ser Gly Gly Gly Asn Gly His  
 320 325 330  
 Lys Pro Gly Cys Glu Lys Pro Gly Asn Glu Ala Arg Gly Ser Gly  
 335 340 345  
 Glu Ser Gly Ile Gln Gly Phe Arg Gly Gln Gly Val Ser Ser Asn  
 350 355 360  
 Met Arg Glu Ile Ser Lys Glu Gly Asn Arg Leu Leu Gly Gly Ser  
 365 370 375  
 Gly Asp Asn Tyr Arg Gly Gln Gly Ser Ser Trp Gly Ser Gly Gly  
 380 385 390  
 Gly Asp Ala Val Gly Gly Val Asn Thr Val Asn Ser Glu Thr Ser  
 395 400 405  
 Pro Gly Met Phe Asn Phe Asp Thr Phe Trp Lys Asn Phe Lys Ser  
 410 415 420  
 Lys Leu Gly Phe Ile Asn Trp Asp Ala Ile Asn Lys Asp Gln Arg  
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 Ser Ser Arg Ile Pro  
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<210> 53

<211> 3580

<212> DNA

<213> Homo sapiens

<400> 53

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<210> 54
<211> 280
<212> PRT
<213> Homo sapiens
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<400> 54															
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				20					25					30	
Glu	Gly	Pro	Ser	Tyr	Ala	Phe	Glu	Val	Asp	Thr	Val	Ala	Pro	Glu	
				35					40					45	
His	Gly	Leu	Asp	Asn	Ala	Pro	Val	Val	Asp	Gln	Gln	Leu	Leu	Tyr	
				50					55					60	
Thr	Cys	Cys	Pro	Tyr	Ile	Gly	Glu	Leu	Arg	Lys	Leu	Leu	Ala	Ser	
				65					70					75	
Trp	Val	Ser	Gly	Ser	Ser	Gly	Arg	Ser	Gly	Gly	Phe	Met	Arg	Lys	
				80					85					90	
Ile	Thr	Pro	Thr	Thr	Thr	Thr	Ser	Leu	Gly	Ala	Gln	Pro	Ser	Gln	
				95					100					105	
Thr	Ser	Gln	Gly	Leu	Gln	Ala	Gln	Leu	Ala	Gln	Ala	Phe	Phe	His	
				110					115					120	
Asn	Gln	Pro	Pro	Ser	Leu	Arg	Arg	Thr	Val	Glu	Phe	Val	Ala	Glu	
				125					130					135	
Arg	Ile	Gly	Ser	Asn	Cys	Val	Lys	His	Ile	Lys	Ala	Thr	Leu	Val	
				140					145					150	



Ala Asp Leu Val Arg Gln Ala Glu Ser Leu Leu Gln Glu Gln Leu	155	160	165
Val Thr Gln Gly Glu Glu Gly Gly Asp Pro Ala Gln Leu Leu Glu	170	175	180
Ile Leu Cys Ser Gln Leu Cys Pro His Gly Ala Gln Ala Leu Ala	185	190	195
Leu Gly Arg Glu Phe Cys Gln Arg Lys Ser Pro Gly Ala Val Arg	200	205	210
Ala Leu Leu Pro Glu Glu Thr Pro Ala Ala Val Leu Ser Ser Ala	215	220	225
Glu Asn Ile Ala Val Gly Leu Ala Thr Glu Lys Ala Cys Ala Trp	230	235	240
Leu Ser Ala Asn Ile Thr Ala Leu Ile Arg Arg Glu Val Lys Ala	245	250	255
Ala Val Ser Arg Thr Leu Arg Ala Gln Gly Pro Glu Pro Ala Ala	260	265	270
Arg Gly Glu Arg Arg Gly Cys Ser Arg Ala	275	280	

<210> 55

<211> 2401

<212> DNA

<213> Homo sapiens

<400> 55

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 <211> 299  
 <212> PRT  
 <213> Homo sapiens

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 Asn Glu Val Phe His Tyr Gly Ser Leu Arg Gly Arg Ser Arg Arg  
 35 40 45  
 Pro Val Asn Leu Lys Lys Trp Ser Ile Thr Asp Gly Tyr Val Pro  
 50 55 60  
 Ile Leu Gly Asn Lys Thr Leu Pro Ser Arg Cys His Gln Cys Val  
 65 70 75  
 Ile Val Ser Ser Ser Ser His Leu Leu Gly Thr Lys Leu Gly Pro  
 80 85 90  
 Glu Ile Glu Arg Ala Glu Cys Thr Ile Arg Met Asn Asp Ala Pro  
 95 100 105  
 Thr Thr Gly Tyr Ser Ala Asp Val Gly Asn Lys Thr Thr Tyr Arg  
 110 115 120  
 Val Val Ala His Ser Ser Val Phe Arg Val Leu Arg Arg Pro Gln  
 125 130 135  
 Glu Phe Val Asn Arg Thr Pro Glu Thr Val Phe Ile Phe Trp Gly  
 140 145 150  
 Pro Pro Ser Lys Met Gln Lys Pro Gln Gly Ser Leu Val Arg Val  
 155 160 165  
 Ile Gln Arg Ala Gly Leu Val Phe Pro Asn Met Glu Ala Tyr Ala



170	175	180
Val Ser Pro Gly Arg Met Arg Gln Phe	Asp Asp Leu Phe Arg Gly	
185	190	195
Glu Thr Gly Lys Asp Arg Glu Lys Ser	His Ser Trp Leu Ser Thr	
200	205	210
Gly Trp Phe Thr Met Val Ile Ala Val	Glu Leu Cys Asp His Val	
215	220	225
His Val Tyr Gly Met Val Pro Pro Asn	Tyr Cys Ser Gln Arg Pro	
230	235	240
Arg Leu Gln Arg Met Pro Tyr His Tyr	Tyr Glu Pro Lys Gly Pro	
245	250	255
Asp Glu Cys Val Thr Tyr Ile Gln Asn	Glu His Ser Arg Lys Gly	
260	265	270
Asn His His Arg Phe Ile Thr Glu Lys	Arg Val Phe Ser Ser Trp	
275	280	285
Ala Gln Leu Tyr Gly Ile Thr Phe Ser	His Pro Ser Trp Thr	
290	295	

<210> 57  
 <211> 4277  
 <212> DNA  
 <213> Homo sapiens

<400> 57  
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 cacgggaccc tcgtcatcac tgcccttaac aaccacactg tgggacggta 650











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<210> 58
<211> 1115
<212> PRT
<213> Homo sapiens
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<400> 58
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                35                      40                      45

Val Gln Lys Pro Gly Gly Thr Val Ile Leu Gly Cys Val Val Glu
                50                      55                      60

Pro Pro Arg Met Asn Val Thr Trp Arg Leu Asn Gly Lys Glu Leu
                65                      70                      75

Asn Gly Ser Asp Asp Ala Leu Gly Val Leu Ile Thr His Gly Thr
                80                      85                      90

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Cys	Met	Ala	Glu	Asn 395	Glu	Val	Gly	Ser	Ala 400	His	Ala	Val	Val	Gln 405
Leu	Arg	Thr	Ser	Arg 410	Pro	Ser	Ile	Thr	Pro 415	Arg	Leu	Trp	Gln	Asp 420
Ala	Glu	Leu	Ala	Thr 425	Gly	Thr	Pro	Pro	Val 430	Ser	Pro	Ser	Lys	Leu 435
Gly	Asn	Pro	Glu	Gln 440	Met	Leu	Arg	Gly	Gln 445	Pro	Ala	Leu	Pro	Arg 450
Pro	Pro	Thr	Ser	Val 455	Gly	Pro	Ala	Ser	Pro 460	Lys	Cys	Pro	Gly	Glu 465
Lys	Gly	Gln	Gly	Ala 470	Pro	Ala	Glu	Ala	Pro 475	Ile	Ile	Leu	Ser	Ser 480
Pro	Arg	Thr	Ser	Lys 485	Thr	Asp	Ser	Tyr	Glu 490	Leu	Val	Trp	Arg	Pro 495
Arg	His	Glu	Gly	Ser 500	Gly	Arg	Ala	Pro	Ile 505	Leu	Tyr	Tyr	Val	Val 510
Lys	His	Arg	Lys	Gln 515	Val	Thr	Asn	Ser	Ser 520	Asp	Asp	Trp	Thr	Ile 525
Ser	Gly	Ile	Pro	Ala 530	Asn	Gln	His	Arg	Leu 535	Thr	Leu	Thr	Arg	Leu 540
Asp	Pro	Gly	Ser	Leu 545	Tyr	Glu	Val	Glu	Met 550	Ala	Ala	Tyr	Asn	Cys 555
Ala	Gly	Glu	Gly	Gln 560	Thr	Ala	Met	Val	Thr 565	Phe	Arg	Thr	Gly	Arg 570
Arg	Pro	Lys	Pro	Glu 575	Ile	Met	Ala	Ser	Lys 580	Glu	Gln	Gln	Ile	Gln 585
Arg	Asp	Asp	Pro	Gly 590	Ala	Ser	Pro	Gln	Ser 595	Ser	Ser	Gln	Pro	Asp 600
His	Gly	Arg	Leu	Ser 605	Pro	Pro	Glu	Ala	Pro 610	Asp	Arg	Pro	Thr	Ile 615
Ser	Thr	Ala	Ser	Glu 620	Thr	Ser	Val	Tyr	Val 625	Thr	Trp	Ile	Pro	Arg 630
Gly	Asn	Gly	Gly	Phe 635	Pro	Ile	Gln	Ser	Phe 640	Arg	Val	Glu	Tyr	Lys 645
Lys	Leu	Lys	Lys	Val 650	Gly	Asp	Trp	Ile	Leu 655	Ala	Thr	Ser	Ala	Ile 660



Pro	Pro	Ser	Arg	Leu 665	Ser	Val	Glu	Ile	Thr 670	Gly	Leu	Glu	Lys	Gly 675
Thr	Ser	Tyr	Lys	Phe 680	Arg	Val	Arg	Ala	Leu 685	Asn	Met	Leu	Gly	Glu 690
Ser	Glu	Pro	Ser	Ala 695	Pro	Ser	Arg	Pro	Tyr 700	Val	Val	Ser	Gly	Tyr 705
Ser	Gly	Arg	Val	Tyr 710	Glu	Arg	Pro	Val	Ala 715	Gly	Pro	Tyr	Ile	Thr 720
Phe	Thr	Asp	Ala	Val 725	Asn	Glu	Thr	Thr	Ile 730	Met	Leu	Lys	Trp	Met 735
Tyr	Ile	Pro	Ala	Ser 740	Asn	Asn	Asn	Thr	Pro 745	Ile	His	Gly	Phe	Tyr 750
Ile	Tyr	Tyr	Arg	Pro 755	Thr	Asp	Ser	Asp	Asn 760	Asp	Ser	Asp	Tyr	Lys 765
Lys	Asp	Met	Val	Glu 770	Gly	Asp	Lys	Tyr	Trp 775	His	Ser	Ile	Ser	His 780
Leu	Gln	Pro	Glu	Thr 785	Ser	Tyr	Asp	Ile	Lys 790	Met	Gln	Cys	Phe	Asn 795
Glu	Gly	Gly	Glu	Ser 800	Glu	Phe	Ser	Asn	Val 805	Met	Ile	Cys	Glu	Thr 810
Lys	Ala	Arg	Lys	Ser 815	Ser	Gly	Gln	Pro	Gly 820	Arg	Leu	Pro	Pro	Pro 825
Thr	Leu	Ala	Pro	Pro 830	Gln	Pro	Pro	Leu	Pro 835	Glu	Thr	Ile	Glu	Arg 840
Pro	Val	Gly	Thr	Gly 845	Ala	Met	Val	Ala	Arg 850	Ser	Ser	Asp	Leu	Pro 855
Tyr	Leu	Ile	Val	Gly 860	Val	Val	Leu	Gly	Ser 865	Ile	Val	Leu	Ile	Ile 870
Val	Thr	Phe	Ile	Pro 875	Phe	Cys	Leu	Trp	Arg 880	Ala	Trp	Ser	Lys	Gln 885
Lys	His	Thr	Thr	Asp 890	Leu	Gly	Phe	Pro	Arg 895	Ser	Ala	Leu	Pro	Pro 900
Ser	Cys	Pro	Tyr	Thr 905	Met	Val	Pro	Leu	Gly 910	Gly	Leu	Pro	Gly	His 915
Gln	Ala	Ser	Gly	Gln 920	Pro	Tyr	Leu	Ser	Gly 925	Ile	Ser	Gly	Arg	Ala 930
Cys	Ala	Asn	Gly	Ile 935	His	Met	Asn	Arg	Gly 940	Cys	Pro	Ser	Ala	Ala 945



[illegible]

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<211> 25

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<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 59

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<210> 60

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 60

gcacacgtag cctgtcgctg gagg 24



<210> 61  
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

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<210> 62  
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<212> DNA  
<213> Homo sapiens

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<221> unsure  
<222> 678  
<223> unknown base

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gagaccacgc cgggcgcccc cagagccctc tccacgtggt gctccccag 250  
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 cacatggaaa a 1661

<210> 63  
 <211> 487  
 <212> PRT  
 <213> Homo sapiens

<220>  
 <221> unsure  
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 <223> unknown amino acid

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 Tyr Leu Arg Arg Leu Leu Leu Leu Leu Leu Leu Leu Leu Arg  
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 Gln Pro Val Thr Arg Ala Glu Thr Thr Pro Gly Ala Pro Arg Ala  
 35 40 45  
 Leu Ser Thr Leu Gly Ser Pro Ser Leu Phe Thr Thr Pro Gly Val  
 50 55 60



Pro	Ser	Ala	Leu	Thr 65	Thr	Pro	Gly	Leu	Thr 70	Thr	Pro	Gly	Thr	Pro 75
Lys	Thr	Leu	Asp	Leu 80	Arg	Gly	Arg	Ala	Gln 85	Ala	Leu	Met	Arg	Ser 90
Phe	Pro	Leu	Val	Asp 95	Gly	His	Asn	Asp	Leu 100	Pro	Gln	Val	Leu	Arg 105
Gln	Arg	Tyr	Lys	Asn 110	Val	Leu	Gln	Asp	Val 115	Asn	Leu	Arg	Asn	Phe 120
Ser	His	Gly	Gln	Thr 125	Ser	Leu	Asp	Arg	Leu 130	Arg	Asp	Gly	Leu	Val 135
Gly	Ala	Gln	Phe	Trp 140	Ser	Ala	Ser	Val	Ser 145	Cys	Gln	Ser	Gln	Asp 150
Gln	Thr	Ala	Val	Arg 155	Leu	Ala	Leu	Glu	Gln 160	Ile	Asp	Leu	Ile	His 165
Arg	Met	Cys	Ala	Ser 170	Tyr	Ser	Glu	Leu	Glu 175	Leu	Val	Thr	Ser	Ala 180
Glu	Gly	Leu	Asn	Ser 185	Ser	Gln	Lys	Leu	Ala 190	Cys	Leu	Ile	Gly	Val 195
Xaa	Gly	Gly	His	Ser 200	Leu	Asp	Ser	Ser	Leu 205	Ser	Val	Leu	Arg	Ser 210
Phe	Tyr	Val	Leu	Gly 215	Val	Arg	Tyr	Leu	Thr 220	Leu	Thr	Phe	Thr	Cys 225
Ser	Thr	Pro	Trp	Ala 230	Glu	Ser	Ser	Thr	Lys 235	Phe	Arg	His	His	Met 240
Tyr	Thr	Asn	Val	Ser 245	Gly	Leu	Thr	Ser	Phe 250	Gly	Glu	Lys	Val	Val 255
Glu	Glu	Leu	Asn	Arg 260	Leu	Gly	Met	Met	Ile 265	Asp	Leu	Ser	Tyr	Ala 270
Ser	Asp	Thr	Leu	Ile 275	Arg	Arg	Val	Leu	Glu 280	Val	Ser	Gln	Ala	Pro 285
Val	Ile	Phe	Ser	His 290	Ser	Ala	Ala	Arg	Ala 295	Val	Cys	Asp	Asn	Leu 300
Leu	Asn	Val	Pro	Asp 305	Asp	Ile	Leu	Gln	Leu 310	Leu	Lys	Asn	Gly	Gly 315
Ile	Val	Met	Val	Thr 320	Leu	Ser	Met	Gly	Val 325	Leu	Gln	Cys	Asn	Leu 330
Leu	Ala	Asn	Val	Ser 335	Thr	Val	Ala	Asp	His 340	Phe	Asp	His	Ile	Arg 345



Ala Val Ile Gly	Ser Glu Phe Ile Gly	Ile Gly Gly Asn Tyr Asp
350		355 360
Gly Thr Gly Arg	Phe Pro Gln Gly Leu	Glu Asp Val Ser Thr Tyr
365		370 375
Pro Val Leu Ile	Glu Glu Leu Leu Ser	Arg Xaa Trp Ser Glu Glu
380		385 390
Glu Leu Gln Gly	Val Leu Arg Gly Asn	Leu Leu Arg Val Phe Arg
395		400 405
Gln Val Glu Lys	Val Arg Glu Glu Ser	Arg Ala Gln Ser Pro Val
410		415 420
Glu Ala Glu Phe	Pro Tyr Gly Gln Leu	Ser Thr Ser Cys His Ser
425		430 435
His Leu Val Pro	Gln Asn Gly His Gln	Ala Thr His Leu Glu Val
440		445 450
Thr Lys Gln Pro	Thr Asn Arg Val Pro	Trp Arg Ser Ser Asn Ala
455		460 465
Ser Pro Tyr Leu	Val Pro Gly Leu Val	Ala Ala Ala Thr Ile Pro
470		475 480
Thr Phe Thr Gln	Trp Leu Cys	
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 <223> Synthetic oligonucleotide probe

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 <212> DNA  
 <213> Artificial Sequence

<220>  
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<400> 65  
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<210> 66  
 <211> 47  
 <212> DNA  
 <213> Artificial Sequence



<220>

<223> Synthetic oligonucleotide probe

<400> 66

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<210> 67

<211> 1564

<212> DNA

<213> Homo sapiens

<400> 67

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ggcccagcaa gcctgataag catgaagctc ttatcttttg tggctgtggt 150  
cgggtgtttg ctggtgcccc cagctgaagc caacaagagt tctgaagata 200  
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<210> 68

<211> 183

<212> PRT

<213> Homo sapiens

<400> 68

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Cys	Ile	Cys	Pro	Pro	Tyr	Arg	Asn	Ile	Ser	Gly	His	Ile	Tyr	Asn	35	40	45	
Gln	Asn	Val	Ser	Gln	Lys	Asp	Cys	Asn	Cys	Leu	His	Val	Val	Glu	50	55	60	
Pro	Met	Pro	Val	Pro	Gly	His	Asp	Val	Glu	Ala	Tyr	Cys	Leu	Leu	65	70	75	
Cys	Glu	Cys	Arg	Tyr	Glu	Glu	Arg	Ser	Thr	Thr	Thr	Ile	Lys	Val	80	85	90	
Ile	Ile	Val	Ile	Tyr	Leu	Ser	Val	Val	Gly	Ala	Leu	Leu	Leu	Tyr	95	100	105	
Met	Ala	Phe	Leu	Met	Leu	Val	Asp	Pro	Leu	Ile	Arg	Lys	Pro	Asp	110	115	120	
Ala	Tyr	Thr	Glu	Gln	Leu	His	Asn	Glu	Glu	Glu	Asn	Glu	Asp	Ala	125	130	135	
Arg	Ser	Met	Ala	Ala	Ala	Ala	Ala	Ser	Leu	Gly	Gly	Pro	Arg	Ala	140	145	150	
Asn	Thr	Val	Leu	Glu	Arg	Val	Glu	Gly	Ala	Gln	Gln	Arg	Trp	Lys	155	160	165	



Leu Gln Val Gln Glu Gln Arg Lys Thr Val Phe Asp Arg His Lys  
 170 175 180

Met Leu Ser

<210> 69

<211> 3170

<212> DNA

<213> Homo sapiens

<400> 69

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 tctgcaagcc cccgcgaccc aagtgagggg ccccggtgtg gggtcctccc 150  
 tccctttgca ttcccacccc tccgggcttt gcgtcttctt ggggaccccc 200  
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<210> 70

<211> 259

<212> PRT

<213> Homo sapiens

<400> 70

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				20					25					30
Ser	Arg	Ala	Lys	Leu	Asn	Ser	Ile	Lys	Ser	Ser	Leu	Gly	Gly	Glu
				35					40					45
Thr	Pro	Gly	Gln	Ala	Ala	Asn	Arg	Ser	Ala	Gly	Met	Tyr	Gln	Gly
				50					55					60
Leu	Ala	Phe	Gly	Gly	Ser	Lys	Lys	Gly	Lys	Asn	Leu	Gly	Gln	Ala
				65					70					75
Tyr	Pro	Cys	Ser	Ser	Asp	Lys	Glu	Cys	Glu	Val	Gly	Arg	Tyr	Cys
				80					85					90
His	Ser	Pro	His	Gln	Gly	Ser	Ser	Ala	Cys	Met	Val	Cys	Arg	Arg
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Lys	Lys	Lys	Arg	Cys	His	Arg	Asp	Gly	Met	Cys	Cys	Pro	Ser	Thr
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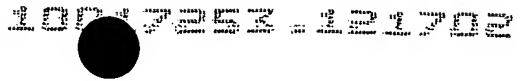




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Phe	Gly	Glu	Leu	Ala	Pro	Pro	Lys	Met	Ala	Asn	Ile	Thr	Ser	Ser
				35					40					45
Gln	Ile	Leu	Asp	Gln	Leu	Lys	Ala	Pro	Ser	Leu	Gly	Gln	Phe	Thr
				50					55					60
Thr	Thr	Pro	Ser	Thr	Gln	Gln	Asn	Ser	Thr	Ser	His	Pro	Thr	Thr
				65					70					75
Thr	Thr	Ser	Trp	Asp	Leu	Lys	Pro	Pro	Thr	Ser	Gln	Ser	Ser	Val
				80					85					90
Leu	Ser	His	Leu	Asp	Phe	Lys	Ser	Gln	Pro	Glu	Pro	Ser	Pro	Val
				95					100					105
Leu	Ser	Gln	Leu	Ser	Gln	Arg	Gln	Gln	His	Gln	Ser	Gln	Ala	Val
				110					115					120
Thr	Val	Pro	Pro	Pro	Gly	Leu	Glu	Ser	Phe	Pro	Ser	Gln	Ala	Lys
				125					130					135
Leu	Arg	Glu	Ser	Thr	Pro	Gly	Asp	Ser	Pro	Ser	Thr	Val	Asn	Lys
				140					145					150
Leu	Leu	Gln	Leu	Pro	Ser	Thr	Thr	Ile	Glu	Asn	Ile	Ser	Val	Ser
				155					160					165
Val	His	Gln	Pro	Gln	Pro	Lys	His	Ile	Lys	Leu	Ala	Lys	Arg	Arg
				170					175					180
Ile	Pro	Pro	Ala	Ser	Lys	Ile	Pro	Ala	Ser	Ala	Val	Glu	Met	Pro
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Gly	Ser	Ala	Asp	Val	Thr	Gly	Leu	Asn	Val	Gln	Phe	Gly	Ala	Leu
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Glu	Phe	Gly	Ser	Glu	Pro	Ser	Leu	Ser	Glu	Phe	Gly	Ser	Ala	Pro
				215					220					225
Ser	Ser	Glu	Asn	Ser	Asn	Gln	Ile	Pro	Ile	Ser	Leu	Tyr	Ser	Lys
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Ser	Leu	Ser	Glu	Pro	Leu	Asn	Thr	Ser	Leu	Ser	Met	Thr	Ser	Ala
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Val	Gln	Asn	Ser	Thr	Tyr	Thr	Thr	Ser	Val	Ile	Thr	Ser	Cys	Ser
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Leu	Thr	Ser	Ser	Ser	Leu	Asn	Ser	Ala	Ser	Pro	Val	Ala	Met	Ser





275	280	285
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305	310	315
Gly His Gly Gly Gly Arg Ser Gln Gln	Thr Leu Asp Ser Lys Tyr	
320	325	330
Ser Ser Lys Leu Leu Leu Ser Trp Leu	Val Pro Thr Lys Gln Arg	
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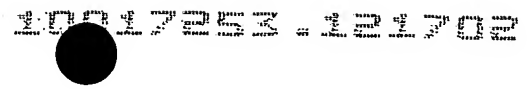
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<211> 1989  
<212> DNA  
<213> Homo sapiens





<400> 76

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<212> PRT
<213> Homo sapiens
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Gly	Ala	Pro	Gly	Pro 215	Asp	Pro	Thr	Leu	Ala 220	Arg	Gly	His	Asn	Val 225
Ile	Asn	Val	Ile	Val 230	Pro	Glu	Ser	Arg	Ala 235	His	Phe	Phe	Gln	Gln 240
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Tyr	Ser	Asp	Gln	Lys 275	Ser	Gly	Lys	Ser	Lys 280	Gly	Lys	Asp	Val	Asn 285
Leu	Ala	Glu	Phe	Ala 290	Val	Ala	Ala	Gly	Asp 295	Gln	Met	Leu	Tyr	Arg 300
Ser	Glu	Asp	Ile	Gln 305	Leu	Asp	Tyr	Lys	Asn 310	Asn	Ile	Leu	Lys	Glu 315
Arg	Ala	Glu	Leu	Ala 320	His	Ser	Pro	Leu	Pro 325	Ala	Lys	Tyr	Ile	Asp 330
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<213> Homo sapiens
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Ala Val Thr Ile Val Cys Met Val Ile Leu Ser Gly Ala Ser Thr	170	175	180
Val Phe Ser Ser Ser Ile Tyr Gly Met Thr Gly Ser Phe Pro Met	185	190	195
Arg Asn Ser Gln Ala Leu Ile Ser Gly Gly Ala Met Gly Gly Thr	200	205	210
Val Ser Ala Val Ala Ser Leu Val Asp Leu Ala Ala Ser Ser Asp	215	220	225
Val Arg Asn Ser Ala Leu Ala Phe Phe Leu Thr Ala Thr Ile Phe	230	235	240
Leu Val Leu Cys Met Gly Leu Tyr Leu Leu Leu Ser Arg Leu Glu	245	250	255
Tyr Ala Arg Tyr Tyr Met Arg Pro Val Leu Ala Ala His Val Phe	260	265	270
Ser Gly Glu Glu Glu Leu Pro Gln Asp Ser Leu Ser Ala Pro Ser	275	280	285
Val Ala Ser Arg Phe Ile Asp Ser His Thr Pro Pro Leu Arg Pro	290	295	300
Ile Leu Lys Lys Thr Ala Ser Leu Gly Phe Cys Val Thr Tyr Val	305	310	315
Phe Phe Ile Thr Ser Leu Ile Tyr Pro Ala Val Cys Thr Asn Ile	320	325	330
Glu Ser Leu Asn Lys Gly Ser Gly Ser Leu Trp Thr Thr Lys Phe	335	340	345
Phe Ile Pro Leu Thr Thr Phe Leu Leu Tyr Asn Phe Ala Asp Leu	350	355	360
Cys Gly Arg Gln Leu Thr Ala Trp Ile Gln Val Pro Gly Pro Asn	365	370	375
Ser Lys Ala Leu Pro Gly Phe Val Leu Leu Arg Thr Cys Leu Ile	380	385	390
Pro Leu Phe Val Leu Cys Asn Tyr Gln Pro Arg Val His Leu Lys	395	400	405
Thr Val Val Phe Gln Ser Asp Val Tyr Pro Ala Leu Leu Ser Ser	410	415	420



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<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

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<210> 83

<211> 1844

<212> DNA

<213> Homo sapiens

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Lys	Val	Leu	Ser	Asp	Ala	Gly	His	Lys	Val	Thr	Ile	Leu	Glu	Ala	
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Lys	Asp	Asp	Trp	Thr 470	Val	Pro	Tyr	Gly	Arg 475	Ile	Tyr	Phe	Ala	Gly 480



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Ala Ser Asp Thr Ala Ser Pro Glu Gly His Ala Ser Asp Met Glu  
515 520 525

Gly Gln Gly His Val His Gly Val Ala Ser Ser Pro Ser His Asp  
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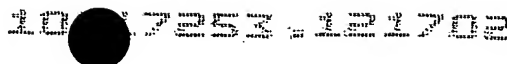
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Gly	Tyr	Arg	Lys	Pro 155	Asn	Gln	Pro	Tyr	Arg 160	Trp	Leu	Ser	Tyr	Lys 165
Gln	Val	Ser	Asp	Arg 170	Ala	Glu	Tyr	Leu	Gly 175	Ser	Cys	Leu	Leu	His 180
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Gln	Asn	Arg	Pro	Glu 200	Trp	Ile	Ile	Ser	Glu 205	Leu	Ala	Cys	Tyr	Thr 210
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Ile	Leu	Ser	Leu	Tyr 290	Asp	Ala	Glu	Asn	Leu 295	Gly	Lys	Glu	His	Phe 300
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Leu Pro Asn Gly	Thr Leu Lys Ile Ile	Asp Arg Lys Lys Asn	Ile		
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Phe Lys Leu Ala	Gln Gly Glu Tyr Ile	Ala Pro Glu Lys Ile	Glu		



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Ser Phe Glu Glu Leu Cys Gln Asn Gln	Val Val Arg Glu Ala Ile	
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Ile Glu Asn Gly Leu Leu Thr Pro Thr	Leu Lys Ala Lys Arg Gly	
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Phe	Leu	Leu	Val	Thr	Val	Ile	Val	Asn	Ile	Lys	Leu	Ile	Leu	Asp
				50					55					60
Thr	Arg	Arg	Ala	Ile	Ser	Glu	Ala	Asn	Glu	Asp	Pro	Glu	Pro	Glu
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Gln	Asp	Tyr	Asp	Glu	Ala	Leu	Gly	Arg	Leu	Glu	Pro	Pro	Arg	Arg
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Arg	Gly	Ser	Gly	Pro	Arg	Arg	Val	Leu	Asp	Val	Glu	Val	Tyr	Ser
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Glu Asp Glu Ala Arg Glu Gln Gly Arg Gly Ile His Val Ile Val	125	130	135
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Thr Tyr Ser Pro His Glu Asp Glu Ala Met Val Leu Phe Leu Asn	155	160	165
Met Val Ala Pro Gly Arg Val Leu Ile Cys Thr Val Lys Asp Glu	170	175	180
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Leu Gly Ser Gln Ala Gly Pro Ala Leu Gly Trp Arg Asp Thr Trp	200	205	210
Ala Phe Val Gly Arg Lys Gly Gly Pro Val Phe Gly Glu Lys His	215	220	225
Ser Lys Ser Pro Ala Leu Ser Ser Trp Gly Asp Pro Val Leu Leu	230	235	240
Lys Thr Asp Val Pro Leu Ser Ser Ala Glu Glu Ala Glu Cys His	245	250	255
Trp Ala Asp Thr Glu Leu Asn Arg Arg Arg Arg Arg Phe Cys Ser	260	265	270
Lys Val Glu Gly Tyr Gly Ser Val Cys Ser Cys Lys Asp Pro Thr	275	280	285
Pro Ile Glu Phe Ser Pro Asp Pro Leu Pro Asp Asn Lys Val Leu	290	295	300
Asn Val Pro Val Ala Val Ile Ala Gly Asn Arg Pro Asn Tyr Leu	305	310	315
Tyr Arg Met Leu Arg Ser Leu Leu Ser Ala Gln Gly Val Ser Pro	320	325	330
Gln Met Ile Thr Val Phe Ile Asp Gly Tyr Tyr Glu Glu Pro Met	335	340	345
Asp Val Val Ala Leu Phe Gly Leu Arg Gly Ile Gln His Thr Pro	350	355	360
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Leu Thr Ala Thr Phe Asn Leu Phe Pro Glu Ala Lys Phe Ala Val	380	385	390



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Cys	Ile	Ser	Ala	Trp 425	Asn	Asp	Gln	Gly	Tyr 430	Glu	His	Thr	Ala	Glu 435
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Trp	Val	Leu	Arg	Arg 455	Ser	Leu	Tyr	Lys	Glu 460	Glu	Leu	Glu	Pro	Lys 465
Trp	Pro	Thr	Pro	Glu 470	Lys	Leu	Trp	Asp	Trp 475	Asp	Met	Trp	Met	Arg 480
Met	Pro	Glu	Gln	Arg 485	Arg	Gly	Arg	Glu	Cys 490	Ile	Ile	Pro	Asp	Val 495
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| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Leu       | Val | Leu | Ala | Ala | Leu | Val | Ala | Cys | Ile | Ile | Val | Leu | Gly | Phe |  |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Asn       | Tyr | Trp | Ile | Ala | Ser | Ser | Arg | Ser | Val | Asp | Leu | Gln | Thr | Arg |  |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Ile       | Met | Glu | Leu | Glu | Gly | Arg | Val | Arg | Arg | Ala | Ala | Ala | Glu | Arg |  |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
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|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
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|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Gln       | Leu | Glu | Ser | Val | Asn | Lys | Leu | Tyr | Gln | Asp | Glu | Lys | Ala | Val |  |
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|           |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
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|           |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Gln       | Ala | Ala | Gly | Leu | Pro | His | Thr | Glu | Val | Pro | Gln | Gly | Lys | Gly |  |
|           |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
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|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Thr       | Arg | Leu | Glu | Leu | Thr | Asn | His | Ser | Ser | Cys | Gln | Glu | Pro | Pro |  |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Gly       | Pro | Gly | Ser | Leu | Pro | Trp | Gly | Ser | Gln | Gly | Lys | Pro | Gly | Ala |  |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Cys       | Trp | Met | Ala | Ser | Arg | Phe | Ser | Arg | Val | Val | Leu | Val | Leu | Ile |  |
|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Asp       | Ala | Leu | Arg | Phe | Asp | Phe | Ala | Gln | Pro | Gln | His | Ser | His | Val |  |
|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Pro       | Arg | Glu | Pro | Pro | Val | Ser | Leu | Pro | Phe | Leu | Gly | Lys | Leu | Ser |  |
|           |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Ser       | Leu | Gln | Arg | Ile | Leu | Glu | Ile | Gln | Pro | His | His | Ala | Arg | Leu |  |
|           |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Tyr       | Arg | Ser | Gln | Val | Asp | Pro | Pro | Thr | Thr | Thr | Met | Gln | Arg | Leu |  |
|           |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Lys       | Ala | Leu | Thr | Thr | Gly | Ser | Leu | Pro | Thr | Phe | Ile | Asp | Ala | Gly |  |
|           |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Ser       | Asn | Phe | Ala | Ser | His | Ala | Ile | Val | Glu | Asp | Asn | Leu | Ile | Lys |  |
|           |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |



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|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Gln | Leu | Thr | Ser | Ala<br>170 | Gly | Arg | Arg | Val | Val<br>175 | Phe | Met | Gly | Asp | Asp<br>180 |
| Thr | Trp | Lys | Asp | Leu<br>185 | Phe | Pro | Gly | Ala | Phe<br>190 | Ser | Lys | Ala | Phe | Phe<br>195 |
| Phe | Pro | Ser | Phe | Asn<br>200 | Val | Arg | Asp | Leu | Asp<br>205 | Thr | Val | Asp | Asn | Gly<br>210 |
| Ile | Leu | Glu | His | Leu<br>215 | Tyr | Pro | Thr | Met | Asp<br>220 | Ser | Gly | Glu | Trp | Asp<br>225 |
| Val | Leu | Ile | Ala | His<br>230 | Phe | Leu | Gly | Val | Asp<br>235 | His | Cys | Gly | His | Lys<br>240 |
| His | Gly | Pro | His | His<br>245 | Pro | Glu | Met | Ala | Lys<br>250 | Lys | Leu | Ser | Gln | Met<br>255 |
| Asp | Gln | Val | Ile | Gln<br>260 | Gly | Leu | Val | Glu | Arg<br>265 | Leu | Glu | Asn | Asp | Thr<br>270 |
| Leu | Leu | Val | Val | Ala<br>275 | Gly | Asp | His | Gly | Met<br>280 | Thr | Thr | Asn | Gly | Asp<br>285 |
| His | Gly | Gly | Asp | Ser<br>290 | Glu | Leu | Glu | Val | Ser<br>295 | Ala | Ala | Leu | Phe | Leu<br>300 |
| Tyr | Ser | Pro | Thr | Ala<br>305 | Val | Phe | Pro | Ser | Thr<br>310 | Pro | Pro | Glu | Glu | Pro<br>315 |
| Glu | Val | Ile | Pro | Gln<br>320 | Val | Ser | Leu | Val | Pro<br>325 | Thr | Leu | Ala | Leu | Leu<br>330 |
| Leu | Gly | Leu | Pro | Ile<br>335 | Pro | Phe | Gly | Asn | Ile<br>340 | Gly | Glu | Val | Met | Ala<br>345 |
| Glu | Leu | Phe | Ser | Gly<br>350 | Gly | Glu | Asp | Ser | Gln<br>355 | Pro | His | Ser | Ser | Ala<br>360 |
| Leu | Ala | Gln | Ala | Ser<br>365 | Ala | Leu | His | Leu | Asn<br>370 | Ala | Gln | Gln | Val | Ser<br>375 |
| Arg | Phe | Leu | His | Thr<br>380 | Tyr | Ser | Ala | Ala | Thr<br>385 | Gln | Asp | Leu | Gln | Ala<br>390 |
| Lys | Glu | Leu | His | Gln<br>395 | Leu | Gln | Asn | Leu | Phe<br>400 | Ser | Lys | Ala | Ser | Ala<br>405 |
| Asp | Tyr | Gln | Trp | Leu<br>410 | Leu | Gln | Ser | Pro | Lys<br>415 | Gly | Ala | Glu | Ala | Thr<br>420 |
| Leu | Pro | Thr | Val | Ile<br>425 | Ala | Glu | Leu | Gln | Gln<br>430 | Phe | Leu | Arg | Gly | Ala<br>435 |
| Arg | Ala | Met | Cys | Ile<br>440 | Glu | Ser | Trp | Ala | Arg<br>445 | Phe | Ser | Leu | Val | Arg<br>450 |



|                                     |                         |
|-------------------------------------|-------------------------|
| Met Ala Gly Gly Thr Ala Leu Leu Ala | Ala Ser Cys Phe Ile Cys |
| 455                                 | 460 465                 |
| Leu Leu Ala Ser Gln Trp Ala Ile Ser | Pro Gly Phe Pro Phe Cys |
| 470                                 | 475 480                 |
| Pro Leu Leu Leu Thr Pro Val Ala Trp | Gly Leu Val Gly Ala Ile |
| 485                                 | 490 495                 |
| Ala Tyr Ala Gly Leu Leu Gly Thr Ile | Glu Leu Lys Leu Asp Leu |
| 500                                 | 505 510                 |
| Val Leu Leu Gly Ala Val Ala Ala Val | Ser Ser Phe Leu Pro Phe |
| 515                                 | 520 525                 |
| Leu Trp Lys Ala Trp Ala Gly Trp Gly | Ser Lys Arg Pro Leu Ala |
| 530                                 | 535 540                 |
| Thr Leu Phe Pro Ile Pro Gly Pro Val | Leu Leu Leu Leu Leu Phe |
| 545                                 | 550 555                 |
| Arg Leu Ala Val Phe Phe Ser Asp Ser | Phe Val Val Ala Glu Ala |
| 560                                 | 565 570                 |
| Arg Ala Thr Pro Phe Leu Leu Gly Ser | Phe Ile Leu Leu Leu Val |
| 575                                 | 580 585                 |
| Val Gln Leu His Trp Glu Gly Gln Leu | Leu Pro Pro Lys Leu Leu |
| 590                                 | 595 600                 |
| Thr Met Pro Arg Leu Gly Thr Ser Ala | Thr Thr Asn Pro Pro Arg |
| 605                                 | 610 615                 |
| His Asn Gly Ala Tyr Ala Leu Arg Leu | Gly Ile Gly Leu Leu Leu |
| 620                                 | 625 630                 |
| Cys Thr Arg Leu Ala Gly Leu Phe His | Arg Cys Pro Glu Glu Thr |
| 635                                 | 640 645                 |
| Pro Val Cys His Ser Ser Pro Trp Leu | Ser Pro Leu Ala Ser Met |
| 650                                 | 655 660                 |
| Val Gly Gly Arg Ala Lys Asn Leu Trp | Tyr Gly Ala Cys Val Ala |
| 665                                 | 670 675                 |
| Ala Leu Val Ala Leu Leu Ala Ala Val | Arg Leu Trp Leu Arg Arg |
| 680                                 | 685 690                 |
| Tyr Gly Asn Leu Lys Ser Pro Glu Pro | Pro Met Leu Phe Val Arg |
| 695                                 | 700 705                 |
| Trp Gly Leu Pro Leu Met Ala Leu Gly | Thr Ala Ala Tyr Trp Ala |
| 710                                 | 715 720                 |
| Leu Ala Ser Gly Ala Asp Glu Ala Pro | Pro Arg Leu Arg Val Leu |
| 725                                 | 730 735                 |



|     |     |     |     |             |     |     |     |     |             |     |     |     |     |             |
|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|
| Val | Ser | Gly | Ala | Ser<br>740  | Met | Val | Leu | Pro | Arg<br>745  | Ala | Val | Ala | Gly | Leu<br>750  |
| Ala | Ala | Ser | Gly | Leu<br>755  | Ala | Leu | Leu | Leu | Trp<br>760  | Lys | Pro | Val | Thr | Val<br>765  |
| Leu | Val | Lys | Ala | Gly<br>770  | Ala | Gly | Ala | Pro | Arg<br>775  | Thr | Arg | Thr | Val | Leu<br>780  |
| Thr | Pro | Phe | Ser | Gly<br>785  | Pro | Pro | Thr | Ser | Gln<br>790  | Ala | Asp | Leu | Asp | Tyr<br>795  |
| Val | Val | Pro | Gln | Ile<br>800  | Tyr | Arg | His | Met | Gln<br>805  | Glu | Glu | Phe | Arg | Gly<br>810  |
| Arg | Leu | Glu | Arg | Thr<br>815  | Lys | Ser | Gln | Gly | Pro<br>820  | Leu | Thr | Val | Ala | Ala<br>825  |
| Tyr | Gln | Leu | Gly | Ser<br>830  | Val | Tyr | Ser | Ala | Ala<br>835  | Met | Val | Thr | Ala | Leu<br>840  |
| Thr | Leu | Leu | Ala | Phe<br>845  | Pro | Leu | Leu | Leu | Leu<br>850  | His | Ala | Glu | Arg | Ile<br>855  |
| Ser | Leu | Val | Phe | Leu<br>860  | Leu | Leu | Phe | Leu | Gln<br>865  | Ser | Phe | Leu | Leu | Leu<br>870  |
| His | Leu | Leu | Ala | Ala<br>875  | Gly | Ile | Pro | Val | Thr<br>880  | Thr | Pro | Gly | Pro | Phe<br>885  |
| Thr | Val | Pro | Trp | Gln<br>890  | Ala | Val | Ser | Ala | Trp<br>895  | Ala | Leu | Met | Ala | Thr<br>900  |
| Gln | Thr | Phe | Tyr | Ser<br>905  | Thr | Gly | His | Gln | Pro<br>910  | Val | Phe | Pro | Ala | Ile<br>915  |
| His | Trp | His | Ala | Ala<br>920  | Phe | Val | Gly | Phe | Pro<br>925  | Glu | Gly | His | Gly | Ser<br>930  |
| Cys | Thr | Trp | Leu | Pro<br>935  | Ala | Leu | Leu | Val | Gly<br>940  | Ala | Asn | Thr | Phe | Ala<br>945  |
| Ser | His | Leu | Leu | Phe<br>950  | Ala | Val | Gly | Cys | Pro<br>955  | Leu | Leu | Leu | Leu | Trp<br>960  |
| Pro | Phe | Leu | Cys | Glu<br>965  | Ser | Gln | Gly | Leu | Arg<br>970  | Lys | Arg | Gln | Gln | Pro<br>975  |
| Pro | Gly | Asn | Glu | Ala<br>980  | Asp | Ala | Arg | Val | Arg<br>985  | Pro | Glu | Glu | Glu | Glu<br>990  |
| Glu | Pro | Leu | Met | Glu<br>995  | Met | Arg | Leu | Arg | Asp<br>1000 | Ala | Pro | Gln | His | Phe<br>1005 |
| Tyr | Ala | Ala | Leu | Leu<br>1010 | Gln | Leu | Gly | Leu | Lys<br>1015 | Tyr | Leu | Phe | Ile | Leu<br>1020 |



Gly Ile Gln Ile Leu Ala Cys Ala Leu Ala Ala Ser Ile Leu Arg  
1025 1030 1035

Arg His Leu Met Val Trp Lys Val Phe Ala Pro Lys Phe Ile Phe  
1040 1045 1050

Glu Ala Val Gly Phe Ile Val Ser Ser Val Gly Leu Leu Leu Gly  
1055 1060 1065

Ile Ala Leu Val Met Arg Val Asp Gly Ala Val Ser Ser Trp Phe  
1070 1075 1080

Arg Gln Leu Phe Leu Ala Gln Gln Arg  
1085

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<212> DNA  
<213> Homo sapiens

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cttatccatc aacatgaaga atgtctaca atggactcca ccagagggtc 150  
ttcaaggagt taaagttact tacactgtgc agtatttcat cacaaattgg 200  
cccaccagag gtggcactga ctacagatga gaagtcatt tctgttgctc 250  
tgacagctcc agagaagtgg aagagaaatc cagaagacct tcctgtttcc 300  
atgcaacaaa tatactcaa tctgaagtat aacgtgtctg tgttgaatac 350  
taaatacaaac agaacgtggc ccagtggtgt gaccaaccac acgctgggtc 400  
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gactttgaaa gatcaatcat cagagttcaa ggctaaaatc atcttctggt 550  
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tccatctacc gatatatcca cgttggcaaa gagaaacacc cagcaaattt 650  
gattttgatt tatggaaatg aatttgacaa aagattcttt gtgcctgctg 700  
aaaaaatcgt gattaacttt atcaccctca atatctcgga tgattctaaa 750  
atttctcatc aggatatgag tttactggga aaaagcagtg atgtatccag 800  
ccttaatgat cctcagccca gcgggaacct gaggccccct caggaggaag 850  
aggaggtgaa acatttaggg tatgcttcgc atttgatgga aattttttgt 900



|            |            |             |             |             |      |
|------------|------------|-------------|-------------|-------------|------|
| gactctgaag | aaaacacgga | aggtacttct  | ctcaccacagc | aagagtcacct | 950  |
| cagcagaaca | ataccccccg | ataaaacagt  | cattgaatat  | gaatatgatg  | 1000 |
| tcagaaccac | tgacatttgt | gcggggcctg  | aagagcagga  | gctcagtttg  | 1050 |
| caggaggagg | tgtccacaca | aggaaacatta | ttggagtcgc  | aggcagcggt  | 1100 |
| ggcagtcttg | ggcccgcaaa | cgttacagta  | ctcatacacc  | cctcagctcc  | 1150 |
| aagacttaga | cccctggcg  | caggagcaca  | cagactcgga  | ggagggggccg | 1200 |
| gaggaagagc | catcgacgac | cctgggtcgac | tgggatcccc  | aaactggcag  | 1250 |
| gctgtgtatt | ccttcgctgt | ccagcttcga  | ccaggattca  | gagggctgcg  | 1300 |
| agccttctga | gggggatggg | ctcggagagg  | agggcttct   | atctagactc  | 1350 |
| tatgaggagc | cggctccaga | caggccacca  | ggagaaaatg  | aaacctatct  | 1400 |
| catgcaattc | atggaggaat | gggggttata  | tgtgcagatg  | gaaaactgat  | 1450 |
| gccaacactt | ccttttgcct | tttgtttcct  | gtgcaaacaa  | gtgagtcacc  | 1500 |
| cctttgatcc | cagccataaa | gtacctggga  | tgaaagaagt  | ttttccagt   | 1550 |
| ttgtcagtgt | ctgtgagaat | tacttatttc  | ttttctctat  | tctcatagca  | 1600 |
| cgtgtgtgat | tggttcatgc | atgtagggtct | cttaacaatg  | atgggtgggc  | 1650 |
| tctggagtcc | aggggctggc | cggttgttct  | atgcagagaa  | agcagtcaat  | 1700 |
| aatgtttgc  | cagactgggt | gcagaattta  | ttcaggtggg  | tgt         | 1743 |

<210> 104

<211> 442

<212> PRT

<213> Homo sapiens

<400> 104

Met Ser Tyr Asn Gly Leu His Gln Arg Val Phe Lys Glu Leu Lys  
1 5 10 15

Leu Leu Thr Leu Cys Ser Ile Ser Ser Gln Ile Gly Pro Pro Glu  
20 25 30

Val Ala Leu Thr Thr Asp Glu Lys Ser Ile Ser Val Val Leu Thr  
35 40 45

Ala Pro Glu Lys Trp Lys Arg Asn Pro Glu Asp Leu Pro Val Ser  
50 55 60

Met Gln Gln Ile Tyr Ser Asn Leu Lys Tyr Asn Val Ser Val Leu  
65 70 75

Asn Thr Lys Ser Asn Arg Thr Trp Ser Gln Cys Val Thr Asn His  
80 85 90



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Leu | Val | Leu | Thr | Trp | Leu | Glu | Pro | Asn | Thr | Leu | Tyr | Cys | Val |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| His | Val | Glu | Ser | Phe | Val | Pro | Gly | Pro | Pro | Arg | Arg | Ala | Gln | Pro |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ser | Glu | Lys | Gln | Cys | Ala | Arg | Thr | Leu | Lys | Asp | Gln | Ser | Ser | Glu |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Phe | Lys | Ala | Lys | Ile | Ile | Phe | Trp | Tyr | Val | Leu | Pro | Ile | Ser | Ile |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Thr | Val | Phe | Leu | Phe | Ser | Val | Met | Gly | Tyr | Ser | Ile | Tyr | Arg | Tyr |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ile | His | Val | Gly | Lys | Glu | Lys | His | Pro | Ala | Asn | Leu | Ile | Leu | Ile |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Tyr | Gly | Asn | Glu | Phe | Asp | Lys | Arg | Phe | Phe | Val | Pro | Ala | Glu | Lys |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ile | Val | Ile | Asn | Phe | Ile | Thr | Leu | Asn | Ile | Ser | Asp | Asp | Ser | Lys |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ile | Ser | His | Gln | Asp | Met | Ser | Leu | Leu | Gly | Lys | Ser | Ser | Asp | Val |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ser | Ser | Leu | Asn | Asp | Pro | Gln | Pro | Ser | Gly | Asn | Leu | Arg | Pro | Pro |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gln | Glu | Glu | Glu | Glu | Val | Lys | His | Leu | Gly | Tyr | Ala | Ser | His | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Met | Glu | Ile | Phe | Cys | Asp | Ser | Glu | Glu | Asn | Thr | Glu | Gly | Thr | Ser |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Leu | Thr | Gln | Gln | Glu | Ser | Leu | Ser | Arg | Thr | Ile | Pro | Pro | Asp | Lys |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Thr | Val | Ile | Glu | Tyr | Glu | Tyr | Asp | Val | Arg | Thr | Thr | Asp | Ile | Cys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Ala | Gly | Pro | Glu | Glu | Gln | Glu | Leu | Ser | Leu | Gln | Glu | Glu | Val | Ser |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Thr | Gln | Gly | Thr | Leu | Leu | Glu | Ser | Gln | Ala | Ala | Leu | Ala | Val | Leu |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Gly | Pro | Gln | Thr | Leu | Gln | Tyr | Ser | Tyr | Thr | Pro | Gln | Leu | Gln | Asp |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Leu | Asp | Pro | Leu | Ala | Gln | Glu | His | Thr | Asp | Ser | Glu | Glu | Gly | Pro |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Glu | Glu | Glu | Pro | Ser | Thr | Thr | Leu | Val | Asp | Trp | Asp | Pro | Gln | Thr |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |



<223> Synthetic oligonucleotide probe



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ctcctccgag tctgtgtgct cctgc 25
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```
<210> 109
<211> 51
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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c 51
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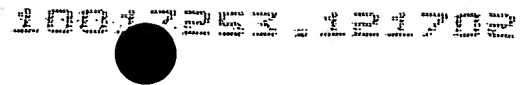
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<211> 1114
<212> DNA
<213> Homo sapiens
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| cgccagcctg | cgtctgccat | ggggctcggg | ttgaggggct  | ggggacgtcc | 100 |
| tctgctgact | gtggccaccg | ccctgatgct | gcccgatgaag | ccccccgcag | 150 |
| gctcctgggg | ggcccagatc | atcggggggc | acgaggtgac  | ccccactcc  | 200 |
| aggccctaca | tggcatccgt | gcgcttcggg | ggccaacatc  | actgcggagg | 250 |
| cttcctgctg | cgagcccgt  | gggtggtctc | ggccgcccac  | tgcttcagcc | 300 |
| acagagacct | ccgcactggc | ctggtggtgc | tgggcgccc   | cgtcctgagt | 350 |
| actgcggagc | ccaccagca  | ggtgtttggc | atcgatgctc  | tcaccacgca | 400 |
| ccccgactac | caccccatga | cccacgccaa | cgacatctgc  | ctgctgcggc | 450 |
| tgaacggctc | tgctgtcctg | ggccctgcag | tggggctgct  | gaggctgcca | 500 |
| gggagaagg  | ccaggcccc  | cacagcggg  | acacggtgcc  | gggtggctgg | 550 |
| ctggggcttc | gtgtctgact | ttgaggagct | gccgcctgga  | ctgatggagg | 600 |
| ccaagggtcc | agtgtctggc | ccggacgtct | gcaacagctc  | ctggaagggc | 650 |
| cacctgacac | ttacatgct  | ctgcaccgc  | agtggggaca  | gccacagacg | 700 |
| gggcttctgc | tcgcccgact | ccggagggc  | cctggtgtgc  | aggaaccggg | 750 |
| ctcacggcct | cgtttccttc | tcgggcctct | ggtgcggcga  | ccccaagacc | 800 |
| cccgacgtgt | acacgcagg  | gtccgccttt | gtggcctgga  | tctgggacgt | 850 |
| ggttcggcgg | aqcagtc    | agcccgccc  | cctgcctggg  | accaccaggc | 900 |









|                 | 200                 |                     | 205 |  | 210 |
|-----------------|---------------------|---------------------|-----|--|-----|
| Arg Gly Phe Cys | Ser Ala Asp Ser Gly | Gly Pro Leu Val Cys | Arg |  |     |
|                 | 215                 |                     | 220 |  | 225 |
| Asn Arg Ala His | Gly Leu Val Ser Phe | Ser Gly Leu Trp Cys | Gly |  |     |
|                 | 230                 |                     | 235 |  | 240 |
| Asp Pro Lys Thr | Pro Asp Val Tyr Thr | Gln Val Ser Ala Phe | Val |  |     |
|                 | 245                 |                     | 250 |  | 255 |
| Ala Trp Ile Trp | Asp Val Val Arg Arg | Ser Ser Pro Gln Pro | Gly |  |     |
|                 | 260                 |                     | 265 |  | 270 |
| Pro Leu Pro Gly | Thr Thr Arg Pro Pro | Gly Glu Ala Ala     |     |  |     |
|                 | 275                 |                     | 280 |  |     |

<210> 112  
<211> 24  
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<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

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<210> 113  
<211> 23  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 113  
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<210> 114  
<211> 44  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

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<210> 115  
<211> 1808  
<212> DNA  
<213> Homo sapiens

<400> 115  
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cgctgtcggc gctgggcacg gtagcaggcg ccgccgtgct gctcaaggac 150  
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ggtcacgtg acgggcgcca acacaggcat cgggaagcag accgccttgg 250  
aactggccag gagaggaggc aacatcatcc tggcctgccg agacatggag 300  
aagtgtgagg cggcagcaaa ggacatccgc ggggagaccc tcaatcacca 350  
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actgtcaacg ccctgcaccc cggcgtggcc aggacagagc tgggcagaca 800  
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gtgagggagc agcccctccc cagataacct ctggagcaga tttgaaagcc 1100  
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<210> 116  
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 <212> PRT  
 <213> Homo sapiens

<400> 116  
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 Arg Gly Gly Asn Ile Ile Leu Ala Cys Arg Asp Met Glu Lys Cys  
 65 70 75  
 Glu Ala Ala Ala Lys Asp Ile Arg Gly Glu Thr Leu Asn His His  
 80 85 90  
 Val Asn Ala Arg His Leu Asp Leu Ala Ser Leu Lys Ser Ile Arg  
 95 100 105  
 Glu Phe Ala Ala Lys Ile Ile Glu Glu Glu Glu Arg Val Asp Ile  
 110 115 120  
 Leu Ile Asn Asn Ala Gly Val Met Arg Cys Pro His Trp Thr Thr  
 125 130 135  
 Glu Asp Gly Phe Glu Met Gln Phe Gly Val Asn His Leu Gly His  
 140 145 150  
 Phe Leu Leu Thr Asn Leu Leu Leu Asp Lys Leu Lys Ala Ser Ala  
 155 160 165  
 Pro Ser Arg Ile Ile Asn Leu Ser Ser Leu Ala His Val Ala Gly  
 170 175 180



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| His | Ile | Asp | Phe | Asp<br>185 | Asp | Leu | Asn | Trp | Gln<br>190 | Thr | Arg | Lys | Tyr | Asn<br>195 |
| Thr | Lys | Ala | Ala | Tyr<br>200 | Cys | Gln | Ser | Lys | Leu<br>205 | Ala | Ile | Val | Leu | Phe<br>210 |
| Thr | Lys | Glu | Leu | Ser<br>215 | Arg | Arg | Leu | Gln | Gly<br>220 | Ser | Gly | Val | Thr | Val<br>225 |
| Asn | Ala | Leu | His | Pro<br>230 | Gly | Val | Ala | Arg | Thr<br>235 | Glu | Leu | Gly | Arg | His<br>240 |
| Thr | Gly | Ile | His | Gly<br>245 | Ser | Thr | Phe | Ser | Ser<br>250 | Thr | Thr | Leu | Gly | Pro<br>255 |
| Ile | Phe | Trp | Leu | Leu<br>260 | Val | Lys | Ser | Pro | Glu<br>265 | Leu | Ala | Ala | Gln | Pro<br>270 |
| Ser | Thr | Tyr | Leu | Ala<br>275 | Val | Ala | Glu | Glu | Leu<br>280 | Ala | Asp | Val | Ser | Gly<br>285 |
| Lys | Tyr | Phe | Asp | Gly<br>290 | Leu | Lys | Gln | Lys | Ala<br>295 | Pro | Ala | Pro | Glu | Ala<br>300 |
| Glu | Asp | Glu | Glu | Val<br>305 | Ala | Arg | Arg | Leu | Trp<br>310 | Ala | Glu | Ser | Ala | Arg<br>315 |
| Leu | Val | Gly | Leu | Glu<br>320 | Ala | Pro | Ser | Val | Arg<br>325 | Glu | Gln | Pro | Leu | Pro<br>330 |

Arg

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<210> 117
<211> 2249
<212> DNA
<213> Homo sapiens
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<210> 118

<211> 544

<212> PRT

<213> Homo sapiens

<400> 118

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Gly | Pro | Gly | Ala | Arg | Leu | Ala | Ala | Leu | Leu | Ala | Val | Leu | Ala | 1   | 5   | 10  | 15 |
| Leu | Gly | Thr | Gly | Asp | Pro | Glu | Arg | Ala | Ala | Ala | Arg | Gly | Asp | Thr | 20  | 25  | 30  |    |
| Phe | Ser | Ala | Leu | Thr | Ser | Val | Ala | Arg | Ala | Leu | Ala | Pro | Glu | Arg | 35  | 40  | 45  |    |
| Arg | Leu | Leu | Gly | Leu | Leu | Arg | Arg | Tyr | Leu | Arg | Gly | Glu | Glu | Ala | 50  | 55  | 60  |    |
| Arg | Leu | Arg | Asp | Leu | Thr | Arg | Phe | Tyr | Asp | Lys | Val | Leu | Ser | Leu | 65  | 70  | 75  |    |
| His | Glu | Asp | Ser | Thr | Thr | Pro | Val | Ala | Asn | Pro | Leu | Leu | Ala | Phe | 80  | 85  | 90  |    |
| Thr | Leu | Ile | Lys | Arg | Leu | Gln | Ser | Asp | Trp | Arg | Asn | Val | Val | His | 95  | 100 | 105 |    |
| Ser | Leu | Glu | Ala | Ser | Glu | Asn | Ile | Arg | Ala | Leu | Lys | Asp | Gly | Tyr | 110 | 115 | 120 |    |
| Glu | Lys | Val | Glu | Gln | Asp | Leu | Pro | Ala | Phe | Glu | Asp | Leu | Glu | Gly | 125 | 130 | 135 |    |
| Ala | Ala | Arg | Ala | Leu | Met | Arg | Leu | Gln | Asp | Val | Tyr | Met | Leu | Asn | 140 | 145 | 150 |    |
| Val | Lys | Gly | Leu | Ala | Arg | Gly | Val | Phe | Gln | Arg | Val | Thr | Gly | Ser | 155 | 160 | 165 |    |
| Ala | Ile | Thr | Asp | Leu | Tyr | Ser | Pro | Lys | Arg | Leu | Phe | Ser | Leu | Thr | 170 | 175 | 180 |    |



|                                     |                         |
|-------------------------------------|-------------------------|
| Gly Asp Asp Cys Phe Gln Val Gly Lys | Val Ala Tyr Asp Met Gly |
| 185                                 | 190 195                 |
| Asp Tyr Tyr His Ala Ile Pro Trp Leu | Glu Glu Ala Val Ser Leu |
| 200                                 | 205 210                 |
| Phe Arg Gly Ser Tyr Gly Glu Trp Lys | Thr Glu Asp Glu Ala Ser |
| 215                                 | 220 225                 |
| Leu Glu Asp Ala Leu Asp His Leu Ala | Phe Ala Tyr Phe Arg Ala |
| 230                                 | 235 240                 |
| Gly Asn Val Ser Cys Ala Leu Ser Leu | Ser Arg Glu Phe Leu Leu |
| 245                                 | 250 255                 |
| Tyr Ser Pro Asp Asn Lys Arg Met Ala | Arg Asn Val Leu Lys Tyr |
| 260                                 | 265 270                 |
| Glu Arg Leu Leu Ala Glu Ser Pro Asn | His Val Val Ala Glu Ala |
| 275                                 | 280 285                 |
| Val Ile Gln Arg Pro Asn Ile Pro His | Leu Gln Thr Arg Asp Thr |
| 290                                 | 295 300                 |
| Tyr Glu Gly Leu Cys Gln Thr Leu Gly | Ser Gln Pro Thr Leu Tyr |
| 305                                 | 310 315                 |
| Gln Ile Pro Ser Leu Tyr Cys Ser Tyr | Glu Thr Asn Ser Asn Ala |
| 320                                 | 325 330                 |
| Tyr Leu Leu Leu Gln Pro Ile Arg Lys | Glu Val Ile His Leu Glu |
| 335                                 | 340 345                 |
| Pro Tyr Ile Ala Leu Tyr His Asp Phe | Val Ser Asp Ser Glu Ala |
| 350                                 | 355 360                 |
| Gln Lys Ile Arg Glu Leu Ala Glu Pro | Trp Leu Gln Arg Ser Val |
| 365                                 | 370 375                 |
| Val Ala Ser Gly Glu Lys Gln Leu Gln | Val Glu Tyr Arg Ile Ser |
| 380                                 | 385 390                 |
| Lys Ser Ala Trp Leu Lys Asp Thr Val | Asp Pro Lys Leu Val Thr |
| 395                                 | 400 405                 |
| Leu Asn His Arg Ile Ala Ala Leu Thr | Gly Leu Asp Val Arg Pro |
| 410                                 | 415 420                 |
| Pro Tyr Ala Glu Tyr Leu Gln Val Val | Asn Tyr Gly Ile Gly Gly |
| 425                                 | 430 435                 |
| His Tyr Glu Pro His Phe Asp His Ala | Thr Ser Pro Ser Ser Pro |
| 440                                 | 445 450                 |
| Leu Tyr Arg Met Lys Ser Gly Asn Arg | Val Ala Thr Phe Met Ile |
| 455                                 | 460 465                 |







&lt;400&gt; 122

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<210> 123
<211> 294
<212> PRT
<213> Homo sapiens
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Ser  Tyr  Leu  Trp  Leu  Lys  Phe  Ser  Leu  Ile  Ile  Tyr  Ser  Thr  Val
          20          25          30

Phe  Trp  Leu  Ile  Gly  Ala  Leu  Val  Leu  Ser  Val  Gly  Ile  Tyr  Ala
          35          40          45

Glu  Val  Glu  Arg  Gln  Lys  Tyr  Lys  Thr  Leu  Glu  Ser  Ala  Phe  Leu
          50          55          60

Ala  Pro  Ala  Ile  Ile  Leu  Ile  Leu  Leu  Gly  Val  Val  Met  Phe  Met
          65          70          75

Val  Ser  Phe  Ile  Gly  Val  Leu  Ala  Ser  Leu  Arg  Asp  Asn  Leu  Tyr
          80          85          90

Leu  Leu  Gln  Ala  Phe  Met  Tyr  Ile  Leu  Gly  Ile  Cys  Leu  Ile  Met
          95          100          105

Glu  Leu  Ile  Gly  Gly  Val  Val  Ala  Leu  Thr  Phe  Arg  Asn  Gln  Thr
          110          115          120

Ile  Asp  Phe  Leu  Asn  Asp  Asn  Ile  Arg  Arg  Gly  Ile  Glu  Asn  Tyr
          125          130          135

Tyr  Asp  Asp  Leu  Asp  Phe  Lys  Asn  Ile  Met  Asp  Phe  Val  Gln  Lys
          140          145          150

Lys  Phe  Lys  Cys  Cys  Gly  Gly  Glu  Asp  Tyr  Arg  Asp  Trp  Ser  Lys
          155          160          165

Asn  Gln  Tyr  His  Asp  Cys  Ser  Ala  Pro  Gly  Pro  Leu  Ala  Cys  Gly

```



| 170   | 175 | 180 |
|---|-----|-----|
| Val Pro Tyr Thr Cys Cys Ile Arg Asn Thr Thr Glu Val Val Asn |     |     |
| 185   | 190 | 195 |
| Thr Met Cys Gly Tyr Lys Thr Ile Asp Lys Glu Arg Phe Ser Val |     |     |
| 200   | 205 | 210 |
| Gln Asp Val Ile Tyr Val Arg Gly Cys Thr Asn Ala Val Ile Ile |     |     |
| 215   | 220 | 225 |
| Trp Phe Met Asp Asn Tyr Thr Ile Met Ala Cys Ile Leu Leu Gly |     |     |
| 230   | 235 | 240 |
| Ile Leu Leu Pro Gln Phe Leu Gly Val Leu Leu Thr Leu Leu Tyr |     |     |
| 245   | 250 | 255 |
| Ile Thr Arg Val Glu Asp Ile Ile Met Glu His Ser Val Thr Asp |     |     |
| 260   | 265 | 270 |
| Gly Leu Leu Gly Pro Gly Ala Lys Pro Ser Val Glu Ala Ala Gly |     |     |
| 275   | 280 | 285 |
| Thr Gly Cys Cys Leu Cys Tyr Pro Asn                         |     |     |
| 290   |     |     |

<210> 124  
 <211> 25  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 124  
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<210> 125  
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 <212> DNA  
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<220>  
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<400> 125  
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<210> 126  
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 <213> Artificial Sequence

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<400> 126



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<210> 127

<211> 1636

<212> DNA

<213> Homo sapiens

<400> 127

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<210> 128  
<211> 484  
<212> PRT  
<213> Homo sapiens

<400> 128  
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Leu Gly Pro Lys Val Ile Lys Glu Lys Leu Thr Gln Glu Leu Lys  
35 40 45  
Asp His Asn Ala Thr Ser Ile Leu Gln Gln Leu Pro Leu Leu Ser  
50 55 60  
Ala Met Arg Glu Lys Pro Ala Gly Gly Ile Pro Val Leu Gly Ser  
65 70 75  
Leu Val Asn Thr Val Leu Lys His Ile Ile Trp Leu Lys Val Ile  
80 85 90  
Thr Ala Asn Ile Leu Gln Leu Gln Val Lys Pro Ser Ala Asn Asp  
95 100 105  
Gln Glu Leu Leu Val Lys Ile Pro Leu Asp Met Val Ala Gly Phe  
110 115 120  
Asn Thr Pro Leu Val Lys Thr Ile Val Glu Phe His Met Thr Thr  
125 130 135  
Glu Ala Gln Ala Thr Ile Arg Met Asp Thr Ser Ala Ser Gly Pro  
140 145 150  
Thr Arg Leu Val Leu Ser Asp Cys Ala Thr Ser His Gly Ser Leu  
155 160 165  
Arg Ile Gln Leu Leu Tyr Lys Leu Ser Phe Leu Val Asn Ala Leu



| 170 |     |     |     |     | 175 |     |     |     |     | 180 |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ala | Lys | Gln | Val | Met | Asn | Leu | Leu | Val | Pro | Ser | Leu | Pro | Asn | Leu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Val | Lys | Asn | Gln | Leu | Cys | Pro | Val | Ile | Glu | Ala | Ser | Phe | Asn | Gly |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Met | Tyr | Ala | Asp | Leu | Leu | Gln | Leu | Val | Lys | Val | Pro | Ile | Ser | Leu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ser | Ile | Asp | Arg | Leu | Glu | Phe | Asp | Leu | Leu | Tyr | Pro | Ala | Ile | Lys |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Asp | Thr | Ile | Gln | Leu | Tyr | Leu | Gly | Ala | Lys | Leu | Leu | Asp | Ser |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gln | Gly | Lys | Val | Thr | Lys | Trp | Phe | Asn | Asn | Ser | Ala | Ala | Ser | Leu |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Thr | Met | Pro | Thr | Leu | Asp | Asn | Ile | Pro | Phe | Ser | Leu | Ile | Val | Ser |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Gln | Asp | Val | Val | Lys | Ala | Ala | Val | Ala | Ala | Val | Leu | Ser | Pro | Glu |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Glu | Phe | Met | Val | Leu | Leu | Asp | Ser | Val | Leu | Pro | Glu | Ser | Ala | His |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Arg | Leu | Lys | Ser | Ser | Ile | Gly | Leu | Ile | Asn | Glu | Lys | Ala | Ala | Asp |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Lys | Leu | Gly | Ser | Thr | Gln | Ile | Val | Lys | Ile | Leu | Thr | Gln | Asp | Thr |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Pro | Glu | Phe | Phe | Ile | Asp | Gln | Gly | His | Ala | Lys | Val | Ala | Gln | Leu |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Ile | Val | Leu | Glu | Val | Phe | Pro | Ser | Ser | Glu | Ala | Leu | Arg | Pro | Leu |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Phe | Thr | Leu | Gly | Ile | Glu | Ala | Ser | Ser | Glu | Ala | Gln | Phe | Tyr | Thr |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Lys | Gly | Asp | Gln | Leu | Ile | Leu | Asn | Leu | Asn | Asn | Ile | Ser | Ser | Asp |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Arg | Ile | Gln | Leu | Met | Asn | Ser | Gly | Ile | Gly | Trp | Phe | Gln | Pro | Asp |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Val | Leu | Lys | Asn | Ile | Ile | Thr | Glu | Ile | Ile | His | Ser | Ile | Leu | Leu |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
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|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Val | Lys | Ala | Leu | Gly | Phe | Glu | Ala | Ala | Glu | Ser | Ser | Leu | Thr | Lys |



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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|
| Arg | Lys | Lys | Glu | Met | Val | Leu | Ser | Glu | Lys | Val | Ser | Gln | Leu | Met |    |  |  |  |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |    |  |  |  |  |
| Glu | Trp | Thr | Asn | Lys | Arg | Pro | Val | Ile | Arg | Met | Asn | Gly | Asp | Lys |    |  |  |  |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |    |  |  |  |  |
| Phe | Arg | Arg | Leu | Val | Lys | Ala | Pro | Pro | Arg | Asn | Tyr | Ser | Val | Ile |    |  |  |  |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |    |  |  |  |  |
| Val | Met | Phe | Thr | Ala | Leu | Gln | Leu | His | Arg | Gln | Cys | Val | Val | Cys |    |  |  |  |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |    |  |  |  |  |
| Lys | Gln | Ala | Asp | Glu | Glu | Phe | Gln | Ile | Leu | Ala | Asn | Ser | Trp | Arg |    |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |    |  |  |  |  |
| Tyr | Ser | Ser | Ala | Phe | Thr | Asn | Arg | Ile | Phe | Phe | Ala | Met | Val | Asp |    |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |    |  |  |  |  |
| Phe | Asp | Glu | Gly | Ser | Asp | Val | Phe | Gln | Met | Leu | Asn | Met | Asn | Ser |    |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |    |  |  |  |  |
| Ala | Pro | Thr | Phe | Ile | Asn | Phe | Pro | Ala | Lys | Gly | Lys | Pro | Lys | Arg |    |  |  |  |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |    |  |  |  |  |
| Gly | Asp | Thr | Tyr | Glu | Leu | Gln | Val | Arg | Gly | Phe | Ser | Ala | Glu | Gln |    |  |  |  |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |    |  |  |  |  |
| Ile | Ala | Arg | Trp | Ile | Ala | Asp | Arg | Thr | Asp | Val | Asn | Ile | Arg | Val |    |  |  |  |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |    |  |  |  |  |
| Ile | Arg | Pro | Pro | Asn | Tyr | Ala | Gly | Pro | Leu | Met | Leu | Gly | Leu | Leu |    |  |  |  |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |    |  |  |  |  |
| Leu | Ala | Val | Ile | Gly | Gly | Leu | Val | Tyr | Leu | Arg | Arg | Ser | Asn | Met |    |  |  |  |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |    |  |  |  |  |
| Glu | Phe | Leu | Phe | Asn | Lys | Thr | Gly | Trp | Ala | Phe | Ala | Ala | Leu | Cys |    |  |  |  |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |    |  |  |  |  |
| Phe | Val | Leu | Ala | Met | Thr | Ser | Gly | Gln | Met | Trp | Asn | His | Ile | Arg |    |  |  |  |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |    |  |  |  |  |
| Gly | Pro | Pro | Tyr | Ala | His | Lys | Asn | Pro | His | Thr | Gly | His | Val | Asn |    |  |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |    |  |  |  |  |
| Tyr | Ile | His | Gly | Ser | Ser | Gln | Ala | Gln | Phe | Val | Ala | Glu | Thr | His |    |  |  |  |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |    |  |  |  |  |
| Ile | Val | Leu | Leu | Phe | Asn | Gly | Gly | Val | Thr | Leu | Gly | Met | Val | Leu |    |  |  |  |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |    |  |  |  |  |
| Leu | Cys | Glu | Ala | Ala | Thr | Ser | Asp | Met | Asp | Ile | Gly | Lys | Arg | Lys |    |  |  |  |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |    |  |  |  |  |
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| Met | Leu | Leu | Leu | Trp | Val | Ser | Val | Val | Ala | Ala | Leu | Ala | Leu | Ala | 1   | 5   | 10  | 15 |
| Val | Leu | Ala | Pro | Gly | Ala | Gly | Glu | Gln | Arg | Arg | Arg | Ala | Ala | Lys | 20  | 25  | 30  |    |
| Ala | Pro | Asn | Val | Val | Leu | Val | Val | Ser | Asp | Ser | Phe | Asp | Gly | Arg | 35  | 40  | 45  |    |
| Leu | Thr | Phe | His | Pro | Gly | Ser | Gln | Val | Val | Lys | Leu | Pro | Phe | Ile | 50  | 55  | 60  |    |
| Asn | Phe | Met | Lys | Thr | Arg | Gly | Thr | Ser | Phe | Leu | Asn | Ala | Tyr | Thr | 65  | 70  | 75  |    |
| Asn | Ser | Pro | Ile | Cys | Cys | Pro | Ser | Arg | Ala | Ala | Met | Trp | Ser | Gly | 80  | 85  | 90  |    |
| Leu | Phe | Thr | His | Leu | Thr | Glu | Ser | Trp | Asn | Asn | Phe | Lys | Gly | Leu | 95  | 100 | 105 |    |
| Asp | Pro | Asn | Tyr | Thr | Thr | Trp | Met | Asp | Val | Met | Glu | Arg | His | Gly | 110 | 115 | 120 |    |
| Tyr | Arg | Thr | Gln | Lys | Phe | Gly | Lys | Leu | Asp | Tyr | Thr | Ser | Gly | His | 125 | 130 | 135 |    |
| His | Ser | Ile | Ser | Asn | Arg | Val | Glu | Ala | Trp | Thr | Arg | Asp | Val | Ala | 140 | 145 | 150 |    |
| Phe | Leu | Leu | Arg | Gln | Glu | Gly | Arg | Pro | Met | Val | Asn | Leu | Ile | Arg | 155 | 160 | 165 |    |
| Asn | Arg | Thr | Lys | Val | Arg | Val | Met | Glu | Arg | Asp | Trp | Gln | Asn | Thr | 170 | 175 | 180 |    |
| Asp | Lys | Ala | Val | Asn | Trp | Leu | Arg | Lys | Glu | Ala | Ile | Asn | Tyr | Thr | 185 | 190 | 195 |    |
| Glu | Pro | Phe | Val | Ile | Tyr | Leu | Gly | Leu | Asn | Leu | Pro | His | Pro | Tyr | 200 | 205 | 210 |    |
| Pro | Ser | Pro | Ser | Ser | Gly | Glu | Asn | Phe | Gly | Ser | Ser | Thr | Phe | His | 215 | 220 | 225 |    |
| Thr | Ser | Leu | Tyr | Trp | Leu | Glu | Lys | Val | Ser | His | Asp | Ala | Ile | Lys | 230 | 235 | 240 |    |
| Ile | Pro | Lys | Trp | Ser | Pro | Leu | Ser | Glu | Met | His | Pro | Val | Asp | Tyr | 245 | 250 | 255 |    |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Tyr | Ser | Ser | Tyr | Thr<br>260 | Lys | Asn | Cys | Thr | Gly<br>265 | Arg | Phe | Thr | Lys | Lys<br>270 |
| Glu | Ile | Lys | Asn | Ile<br>275 | Arg | Ala | Phe | Tyr | Tyr<br>280 | Ala | Met | Cys | Ala | Glu<br>285 |
| Thr | Asp | Ala | Met | Leu<br>290 | Gly | Glu | Ile | Ile | Leu<br>295 | Ala | Leu | His | Gln | Leu<br>300 |
| Asp | Leu | Leu | Gln | Lys<br>305 | Thr | Ile | Val | Ile | Tyr<br>310 | Ser | Ser | Asp | His | Gly<br>315 |
| Glu | Leu | Ala | Met | Glu<br>320 | His | Arg | Gln | Phe | Tyr<br>325 | Lys | Met | Ser | Met | Tyr<br>330 |
| Glu | Ala | Ser | Ala | His<br>335 | Val | Pro | Leu | Leu | Met<br>340 | Met | Gly | Pro | Gly | Ile<br>345 |
| Lys | Ala | Gly | Leu | Gln<br>350 | Val | Ser | Asn | Val | Val<br>355 | Ser | Leu | Val | Asp | Ile<br>360 |
| Tyr | Pro | Thr | Met | Leu<br>365 | Asp | Ile | Ala | Gly | Ile<br>370 | Pro | Leu | Pro | Gln | Asn<br>375 |
| Leu | Ser | Gly | Tyr | Ser<br>380 | Leu | Leu | Pro | Leu | Ser<br>385 | Ser | Glu | Thr | Phe | Lys<br>390 |
| Asn | Glu | His | Lys | Val<br>395 | Lys | Asn | Leu | His | Pro<br>400 | Pro | Trp | Ile | Leu | Ser<br>405 |
| Glu | Phe | His | Gly | Cys<br>410 | Asn | Val | Asn | Ala | Ser<br>415 | Thr | Tyr | Met | Leu | Arg<br>420 |
| Thr | Asn | His | Trp | Lys<br>425 | Tyr | Ile | Ala | Tyr | Ser<br>430 | Asp | Gly | Ala | Ser | Ile<br>435 |
| Leu | Pro | Gln | Leu | Phe<br>440 | Asp | Leu | Ser | Ser | Asp<br>445 | Pro | Asp | Glu | Leu | Thr<br>450 |
| Asn | Val | Ala | Val | Lys<br>455 | Phe | Pro | Glu | Ile | Thr<br>460 | Tyr | Ser | Leu | Asp | Gln<br>465 |
| Lys | Leu | His | Ser | Ile<br>470 | Ile | Asn | Tyr | Pro | Lys<br>475 | Val | Ser | Ala | Ser | Val<br>480 |
| His | Gln | Tyr | Asn | Lys<br>485 | Glu | Gln | Phe | Ile | Lys<br>490 | Trp | Lys | Gln | Ser | Ile<br>495 |
| Gly | Gln | Asn | Tyr | Ser<br>500 | Asn | Val | Ile | Ala | Asn<br>505 | Leu | Arg | Trp | His | Gln<br>510 |
| Asp | Trp | Gln | Lys | Glu<br>515 | Pro | Arg | Lys | Tyr | Glu<br>520 | Asn | Ala | Ile | Asp | Gln<br>525 |
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 ctggaatcat cctctgcttt tctgtctcat ccagagaaa tcgctccaac 700  
 tactacgatg cctaccaagc ccaacctctt gccacaagga gctctccaag 750  
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 gtgaaaaaca gtggacagca ccccgagggc cacaggtgag ggacactacc 900  
 actggatcgt gtcagaagggt gctgctgagg atagactgac tttggccatt 950  
 ggattgagca aaggcagaaa tgggggctag tgtaacagca tgcaggttga 1000  
 attgccaagg atgctcgcca tgccagcctt tctgttttcc tcaccttgc 1050  
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 gagaagcagt ggcttttgtg ggcattgctc taacctactt ctcaagcttc 1300



cctccaaaga aactgattgg ccttgaacc tccatcccac tcttggtatg 1350  
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<210> 134  
 <211> 230  
 <212> PRT  
 <213> Homo sapiens

<400> 134  
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 Lys Thr Ser Ser Tyr Val Gly Ala Ser Ile Val Thr Ala Val Gly  
 35 40 45  
 Phe Ser Lys Gly Leu Trp Met Glu Cys Ala Thr His Ser Thr Gly  
 50 55 60  
 Ile Thr Gln Cys Asp Ile Tyr Ser Thr Leu Leu Gly Leu Pro Ala  
 65 70 75  
 Asp Ile Gln Ala Ala Gln Ala Met Met Val Thr Ser Ser Ala Ile  
 80 85 90  
 Ser Ser Leu Ala Cys Ile Ile Ser Val Val Gly Met Arg Cys Thr  
 95 100 105  
 Val Phe Cys Gln Glu Ser Arg Ala Lys Asp Arg Val Ala Val Ala  
 110 115 120  
 Gly Gly Val Phe Phe Ile Leu Gly Gly Leu Leu Gly Phe Ile Pro  
 125 130 135  
 Val Ala Trp Asn Leu His Gly Ile Leu Arg Asp Phe Tyr Ser Pro  
 140 145 150  
 Leu Val Pro Asp Ser Met Lys Phe Glu Ile Gly Glu Ala Leu Tyr  
 155 160 165  
 Leu Gly Ile Ile Ser Ser Leu Phe Ser Leu Ile Ala Gly Ile Ile  
 170 175 180  
 Leu Cys Phe Ser Cys Ser Ser Gln Arg Asn Arg Ser Asn Tyr Tyr  
 185 190 195  
 Asp Ala Tyr Gln Ala Gln Pro Leu Ala Thr Arg Ser Ser Pro Arg  
 200 205 210



Pro Gly Gln Pro Pro Lys Val Lys Ser Glu Phe Asn Ser Tyr Ser  
 215 220 225

Leu Thr Gly Tyr Val  
 230

<210> 135  
 <211> 610  
 <212> DNA  
 <213> Homo sapiens

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 aagtcacgcg tcccgtggc tcagaacct ggctgtgcca gccggcacc 150  
 aggtgtggag acaagatcta caacccttg gagcagtgt gttacaatga 200  
 cgccatcgtg tccctgagcg agaccgcca atgtgggtccc ccctgcacct 250  
 tctggccctg ctttgagctc tgctgtcttg attccttttg cctcaciaaac 300  
 gattttgttg tgaagctgaa gggtcagggt gtgaattccc agtgccactc 350  
 atctcccatc tccagtaaat gtgaaagcag aagacgtttt ccctgagaag 400  
 acatagaaag aaaatcaact ttcactaagg catctcagaa acataggcta 450  
 aggtaatatg tgtaccagta gagaagcctg aggaatttac aaaatgatgc 500  
 agctccaagc cattgtatgg cccatgtggg agactgatgg gacatggaga 550  
 atgacagtag attatcagga aataaataaa gtgggttttt caatgtacac 600  
 acctgtaaaa 610

<210> 136  
 <211> 119  
 <212> PRT  
 <213> Homo sapiens

<400> 136  
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 20 25 30  
 Pro Trp Leu Cys Gln Pro Ala Pro Arg Cys Gly Asp Lys Ile Tyr  
 35 40 45  
 Asn Pro Leu Glu Gln Cys Cys Tyr Asn Asp Ala Ile Val Ser Leu  
 50 55 60  
 Ser Glu Thr Arg Gln Cys Gly Pro Pro Cys Thr Phe Trp Pro Cys



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|     | 65  |     | 70  |     | 75  |     |     |     |     |     |     |     |     |     |
| Phe | Glu | Leu | Cys | Cys | Leu | Asp | Ser | Phe | Gly | Leu | Thr | Asn | Asp | Phe |
|     |     |     | 80  |     |     |     |     |     | 85  |     |     |     |     | 90  |
| Val | Val | Lys | Leu | Lys | Val | Gln | Gly | Val | Asn | Ser | Gln | Cys | His | Ser |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ser | Pro | Ile | Ser | Ser | Lys | Cys | Glu | Ser | Arg | Arg | Arg | Phe | Pro |     |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     |     |

<210> 137  
 <211> 771  
 <212> DNA  
 <213> Homo sapiens

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 agtggccccc atgactcctt acctgatgct gtgccagcca cacaagagat 150  
 gtggggacaa gttctacgac cccctgcagc actgttgcta tgatgatgcc 200  
 gtcgtgccct tggccaggac ccagacgtgt ggaaactgca cttcagagt 250  
 ctgctttgag cagtgtgcc cctggacctt catggtgaag ctgataaacc 300  
 agaactgcga ctacgcccgg acctcggatg acaggctttg tcgcagtgtc 350  
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 tgggcctgga gaaagaggct ggtgttacct gagatctggg atgctgagt 450  
 gctgtttggg ggccagagaa acacacactc aactgcccac ttcattctgt 500  
 gacctgtctg aggccacccc tgcagctgcc ctgaggaggc ccacagggtcc 550  
 ctttctagaa ttctggacag catgagatgc gtgtgctgat gggggcccag 600  
 ggactctgaa ccctcctgat gaccctatg gccaacatca acccggcacc 650  
 accccaaggc tggctgggga acccttcacc cttctgtgag attttccatc 700  
 atctcaagtt ctcttctatc caggagcaaa gcacaggatc ataataaatt 750  
 tatgtacttt ataatgaaa a 771

<210> 138  
 <211> 110  
 <212> PRT  
 <213> Homo sapiens

<400> 138  
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<400> 139
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ctccccggca ccagaagttc ctctgcgcgt ccgacggcga catgggcgtc 150
cccacggccc tggaggccgg cagctggcgc tggggatccc tgetcttcgc 200
tctcttcctg gctgcgtccc taggtccggt ggcagccttc aaggtcgcca 250
cgccgtattc cctgtatgtc tgtcccgagg ggcagaacgt caccctcacc 300
tgcaggctct tgggcccctgt ggacaaaggg cacgatgtga cttctacaa 350
gacgtggtac cgcagctcga ggggcgaggt gcagacctgc tcagagcgcc 400
ggcccatccg caacctcacg ttccaggacc ttcacctgca ccatggaggc 450
caccaggctg ccaacaccag ccacgacctg gctcagcgcc acgggctgga 500
gtcggcctcc gaccaccatg gcaacttctc catcaccatg cgcaacctga 550
ccctgctgga tagcggcctc tactgctgcc tggtggtgga gatcaggcac 600
caccactcgg agcacagggt ccatggtgcc atggagctgc aggtgcagac 650
aggcaaagat gcaccatcca actgtgtggt gtacccatcc tcctcccagg 700
atagtgaaaa catcacggct gcagccctgg ctacgggtgc ctgcategta 750
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&lt;400&gt; 140

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Val | Pro | Thr | Ala | Leu | Glu | Ala | Gly | Ser | Trp | Arg | Trp | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ser | Leu | Leu | Phe | Ala | Leu | Phe | Leu | Ala | Ala | Ser | Leu | Gly | Pro | Val |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | Ala | Phe | Lys | Val | Ala | Thr | Pro | Tyr | Ser | Leu | Tyr | Val | Cys | Pro |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Glu | Gly | Gln | Asn | Val | Thr | Leu | Thr | Cys | Arg | Leu | Leu | Gly | Pro | Val |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Asp | Lys | Gly | His | Asp | Val | Thr | Phe | Tyr | Lys | Thr | Trp | Tyr | Arg | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ser | Arg | Gly | Glu | Val | Gln | Thr | Cys | Ser | Glu | Arg | Arg | Pro | Ile | Arg |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Asn | Leu | Thr | Phe | Gln | Asp | Leu | His | Leu | His | His | Gly | Gly | His | Gln |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ala | Ala | Asn | Thr | Ser | His | Asp | Leu | Ala | Gln | Arg | His | Gly | Leu | Glu |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ser | Ala | Ser | Asp | His | His | Gly | Asn | Phe | Ser | Ile | Thr | Met | Arg | Asn |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Leu | Thr | Leu | Leu | Asp | Ser | Gly | Leu | Tyr | Cys | Cys | Leu | Val | Val | Glu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Ile | Arg | His | His | His | Ser | Glu | His | Arg | Val | His | Gly | Ala | Met | Glu |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Leu | Gln | Val | Gln | Thr | Gly | Lys | Asp | Ala | Pro | Ser | Asn | Cys | Val | Val |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Tyr | Pro | Ser | Ser | Ser | Gln | Asp | Ser | Glu | Asn | Ile | Thr | Ala | Ala | Ala |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Leu | Ala | Thr | Gly | Ala | Cys | Ile | Val | Gly | Ile | Leu | Cys | Leu | Pro | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ile | Leu | Leu | Leu | Val | Tyr | Lys | Gln | Arg | Gln | Ala | Ala | Ser | Asn | Arg |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Arg | Ala | Gln | Glu | Leu | Val | Arg | Met | Asp | Ser | Asn | Ile | Gln | Gly | Ile |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Glu | Asn | Pro | Gly | Phe | Glu | Ala | Ser | Pro | Pro | Ala | Gln | Gly | Ile | Pro |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Glu | Ala | Lys | Val | Arg | His | Pro | Leu | Ser | Tyr | Val | Ala | Gln | Arg | Gln |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Pro | Ser | Glu | Ser | Gly | Arg | His | Leu | Leu | Ser | Glu | Pro | Ser | Thr | Pro |



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<210> 141
<211> 1732
<212> DNA
<213> Homo sapiens
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ccttctccga ccccgctcta gcagcagacc tcctggggtc tgtgggttga 200
tctgtggccc ctgtgcctcc gtgtcctttt cgtctccctt cctcccgact 250
ccgctcccgg acccgcggcc tgaccctggg gaaaggatgg ttcccagagt 300
gagggtcctc tcctccttgc tgggactcgc gctgctctgg ttccccctgg 350
actcccacgc tcgagccgc ccagacatgt tctgcctttt ccatgggaag 400
agatactccc ccggcgagag ctggcacccc tacttgagc cacaaggcct 450
gatgtactgc ctgcgctgta cctgctcaga gggcgcccat gtgagttgtt 500
accgcctcca ctgtccgctt gtccactgcc cccagcctgt gacggagcca 550
cagcaatgct gtcccaagtg tgtggaacct cacactcctt ctggactccg 600
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agatcttcag tgcccatgag ctgttccctt cccgcctgcc caaccagtgt 700
gtcctctgca gctgcacaga gggccagatc tactgcggcc tcacaacctg 750
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aagcctgcaa agatgaggca agtgagcaat cggatgaaga ggacagtgtg 850
cagtcgctcc atggggtgag acatcctcag gatccatgtt ccagtgatgc 900
tgggagaaaag agaggcccg gcacccacgc cccactggc ctcagcgccc 950
ctctgagctt catcctcgc cacttcagac ccaagggagc aggcagcaca 1000
actgtcaaga tcgtcctgaa ggagaaacat aagaaagcct gtgtgcatgg 1050
cggaagacg tactccacg gggaggtgtg gcaccggcc ttccgtgcct 1100
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tcggccccctt gccctgcata ctatgcacct gtgaggatgg ccgccaggac 1150  
 tgccagcgtg tgacctgtcc caccgagtac ccctgccgtc accccgagaa 1200  
 agtggctggg aagtgtgca agatttggcc agaggacaaa gcagaccctg 1250  
 gccacagtga gatcagttct accaggtgtc ccaaggcacc gggccgggtc 1300  
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 taaaagatga ggaaactgag gctcagagag gtgaagtacc tggcccaagg 1450  
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 aagacttcca gaaagaggca cagcacttcc gactgctcgc tggcccccac 1550  
 gaaggtcact ggaacgtctt cctagcccag accctggagc tgaaggtcac 1600  
 ggccagtcca gacaaagtga ccaagacata acaaagacct aacagttgca 1650  
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 cattaccctc aaaaaaaaaa aaaaaaaaaa aa 1732

<210> 142  
 <211> 451  
 <212> PRT  
 <213> Homo sapiens

<400> 142  
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 20 25 30  
 Met Phe Cys Leu Phe His Gly Lys Arg Tyr Ser Pro Gly Glu Ser  
 35 40 45  
 Trp His Pro Tyr Leu Glu Pro Gln Gly Leu Met Tyr Cys Leu Arg  
 50 55 60  
 Cys Thr Cys Ser Glu Gly Ala His Val Ser Cys Tyr Arg Leu His  
 65 70 75  
 Cys Pro Pro Val His Cys Pro Gln Pro Val Thr Glu Pro Gln Gln  
 80 85 90  
 Cys Cys Pro Lys Cys Val Glu Pro His Thr Pro Ser Gly Leu Arg  
 95 100 105  
 Ala Pro Pro Lys Ser Cys Gln His Asn Gly Thr Met Tyr Gln His  
 110 115 120



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Gly | Glu | Ile | Phe | Ser<br>125 | Ala | His | Glu | Leu | Phe<br>130 | Pro | Ser | Arg | Leu | Pro<br>135 |
| Asn | Gln | Cys | Val | Leu<br>140 | Cys | Ser | Cys | Thr | Glu<br>145 | Gly | Gln | Ile | Tyr | Cys<br>150 |
| Gly | Leu | Thr | Thr | Cys<br>155 | Pro | Glu | Pro | Gly | Cys<br>160 | Pro | Ala | Pro | Leu | Pro<br>165 |
| Leu | Pro | Asp | Ser | Cys<br>170 | Cys | Gln | Ala | Cys | Lys<br>175 | Asp | Glu | Ala | Ser | Glu<br>180 |
| Gln | Ser | Asp | Glu | Glu<br>185 | Asp | Ser | Val | Gln | Ser<br>190 | Leu | His | Gly | Val | Arg<br>195 |
| His | Pro | Gln | Asp | Pro<br>200 | Cys | Ser | Ser | Asp | Ala<br>205 | Gly | Arg | Lys | Arg | Gly<br>210 |
| Pro | Gly | Thr | Pro | Ala<br>215 | Pro | Thr | Gly | Leu | Ser<br>220 | Ala | Pro | Leu | Ser | Phe<br>225 |
| Ile | Pro | Arg | His | Phe<br>230 | Arg | Pro | Lys | Gly | Ala<br>235 | Gly | Ser | Thr | Thr | Val<br>240 |
| Lys | Ile | Val | Leu | Lys<br>245 | Glu | Lys | His | Lys | Lys<br>250 | Ala | Cys | Val | His | Gly<br>255 |
| Gly | Lys | Thr | Tyr | Ser<br>260 | His | Gly | Glu | Val | Trp<br>265 | His | Pro | Ala | Phe | Arg<br>270 |
| Ala | Phe | Gly | Pro | Leu<br>275 | Pro | Cys | Ile | Leu | Cys<br>280 | Thr | Cys | Glu | Asp | Gly<br>285 |
| Arg | Gln | Asp | Cys | Gln<br>290 | Arg | Val | Thr | Cys | Pro<br>295 | Thr | Glu | Tyr | Pro | Cys<br>300 |
| Arg | His | Pro | Glu | Lys<br>305 | Val | Ala | Gly | Lys | Cys<br>310 | Cys | Lys | Ile | Cys | Pro<br>315 |
| Glu | Asp | Lys | Ala | Asp<br>320 | Pro | Gly | His | Ser | Glu<br>325 | Ile | Ser | Ser | Thr | Arg<br>330 |
| Cys | Pro | Lys | Ala | Pro<br>335 | Gly | Arg | Val | Leu | Val<br>340 | His | Thr | Ser | Val | Ser<br>345 |
| Pro | Ser | Pro | Asp | Asn<br>350 | Leu | Arg | Arg | Phe | Ala<br>355 | Leu | Glu | His | Glu | Ala<br>360 |
| Ser | Asp | Leu | Val | Glu<br>365 | Ile | Tyr | Leu | Trp | Lys<br>370 | Leu | Val | Lys | Asp | Glu<br>375 |
| Glu | Thr | Glu | Ala | Gln<br>380 | Arg | Gly | Glu | Val | Pro<br>385 | Gly | Pro | Arg | Pro | His<br>390 |
| Ser | Gln | Asn | Leu | Pro<br>395 | Leu | Asp | Ser | Asp | Gln<br>400 | Glu | Ser | Gln | Glu | Ala<br>405 |



Glu Gly His Gly Gln Ser Arg Gln Ser Asp Gln Asp Ile Thr Lys  
440 445 450

Thr

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<210> 143
<211> 693
<212> DNA
<213> Homo sapiens
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cttgcgga aa atgctgatct cagtcgcaat gctgggcgca ggggctggcg 150
tgggctacgc gtcctcgtt atcgtgaccc cgggagagcg gcggaagcag 200
gaaatgctaa aggagatgcc actgcaggac ccaaggagca gggaggaggc 250
ggccaggacc cagcagctat tgctggccac tctgcaggag gcagcgacca 300
cgcaggagaa cgtggccttg aggaagaact ggatggttg cggcgaaggc 350
ggcgccagcg ggaggtcacc gtgagaccgg acttgccctc gtgggcgcgcg 400
gaccttggct tgggcgcagg aatccgaggc agcctttctc cttcgtgggc 450
ccagcggaga gtccggaccg agataccatg ccaggactct ccgggggtcct 500
gtgagctgcc gtcgggtgag cacgtttccc ccaaaccctg gactgactgc 550
tttaagggtcc gcaaggcggg ccagggccga gacgcgagtc ggatgtggtg 600
aactgaaaga accaataaaa tcatgttcct ccaaaaaaaaa aaaaaaaaaa 650
aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaa 693
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<210> 144
<211> 93
<212> PRT
<213> Homo sapiens
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<400> 144
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  1          5          10          15

Ala Gly Ala Gly Val Gly Tyr Ala Leu Leu Val Ile Val Thr Pro
          20          25          30

```





Arg Ser Pro

```
<210> 145
<211> 1883
<212> DNA
<213> Homo sapiens
```

|             |             |             |            |            |     |
|-------------|-------------|-------------|------------|------------|-----|
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| ttgaggggaa  | gaggctgact  | gtacgttcct  | tctactctgg | caccactctc | 100 |
| caggctgcca  | tggggcccag  | cacccctctc  | ctcatcttgt | tccttttgtc | 150 |
| atggtcggga  | cccctccaag  | gacagcagca  | ccaccttggt | gagtacatgg | 200 |
| aacgccgact  | agctgcttta  | gaggaacggc  | tggcccagtg | ccaggaccag | 250 |
| agtagtcggc  | atgctgctga  | gctgcgggac  | ttcaagaaca | agatgctgcc | 300 |
| actgctggag  | gtggcagaga  | aggagcggga  | ggcactcaga | actgaggccg | 350 |
| acaccatctc  | cgggagagtg  | gatcgtctgg  | agcgggaggt | agactatctg | 400 |
| gagacccaga  | accagctct   | gccctgtgta  | gagtttgatg | agaaggtgac | 450 |
| tggaggccct  | gggaccaaag  | gcaagggaag  | aaggaatgag | aagtacgata | 500 |
| tggtgacaga  | ctgtggctac  | acaatctctc  | aagtgagatc | aatgaagatt | 550 |
| ctgaagcgat  | ttggtggccc  | agctgggtcta | tggaccaagg | atccactggg | 600 |
| gcaaacagag  | aagatctacg  | tgtagatgg   | gacacagaat | gacacagcct | 650 |
| ttgtcttccc  | aaggctgcgt  | gacttcaccc  | ttgccatggc | tgcccggaaa | 700 |
| gcttcccag   | tccgggtgcc  | cttcccctgg  | gtaggcacag | ggcagctggg | 750 |
| atatggtggc  | tttctttatt  | ttgctcggag  | gcctcctgga | agacctgggt | 800 |
| gaggtggtga  | gatggagaac  | actttgcagc  | taatcaaatt | ccacctggca | 850 |
| aaccgaacag  | tgggtggacag | ctcagtattc  | ccagcagagg | ggctgatccc | 900 |



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<211> 406

<212> PRT

<213> Homo sapiens

<400> 146

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Gly | Pro | Ser | Thr | Pro | Leu | Leu | Ile | Leu | Phe | Leu | Leu | Ser | Trp |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gly | Pro | Leu | Gln | Gly | Gln | Gln | His | His | Leu | Val | Glu | Tyr | Met |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Glu | Arg | Arg | Leu | Ala | Ala | Leu | Glu | Glu | Arg | Leu | Ala | Gln | Cys | Gln |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Asp | Gln | Ser | Ser | Arg | His | Ala | Ala | Glu | Leu | Arg | Asp | Phe | Lys | Asn |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



| 50  |     |     |     |     |     |     |     |     |     | 55  |     |     |     |     | 60 |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|
| Lys | Met | Leu | Pro | Leu | Leu | Glu | Val | Ala | Glu | Lys | Glu | Arg | Glu | Ala |    |  |  |  |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |    |  |  |  |  |
| Leu | Arg | Thr | Glu | Ala | Asp | Thr | Ile | Ser | Gly | Arg | Val | Asp | Arg | Leu |    |  |  |  |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |    |  |  |  |  |
| Glu | Arg | Glu | Val | Asp | Tyr | Leu | Glu | Thr | Gln | Asn | Pro | Ala | Leu | Pro |    |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |    |  |  |  |  |
| Cys | Val | Glu | Phe | Asp | Glu | Lys | Val | Thr | Gly | Gly | Pro | Gly | Thr | Lys |    |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |    |  |  |  |  |
| Gly | Lys | Gly | Arg | Arg | Asn | Glu | Lys | Tyr | Asp | Met | Val | Thr | Asp | Cys |    |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |    |  |  |  |  |
| Gly | Tyr | Thr | Ile | Ser | Gln | Val | Arg | Ser | Met | Lys | Ile | Leu | Lys | Arg |    |  |  |  |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |    |  |  |  |  |
| Phe | Gly | Gly | Pro | Ala | Gly | Leu | Trp | Thr | Lys | Asp | Pro | Leu | Gly | Gln |    |  |  |  |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |    |  |  |  |  |
| Thr | Glu | Lys | Ile | Tyr | Val | Leu | Asp | Gly | Thr | Gln | Asn | Asp | Thr | Ala |    |  |  |  |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |    |  |  |  |  |
| Phe | Val | Phe | Pro | Arg | Leu | Arg | Asp | Phe | Thr | Leu | Ala | Met | Ala | Ala |    |  |  |  |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |    |  |  |  |  |
| Arg | Lys | Ala | Ser | Arg | Val | Arg | Val | Pro | Phe | Pro | Trp | Val | Gly | Thr |    |  |  |  |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |    |  |  |  |  |
| Gly | Gln | Leu | Val | Tyr | Gly | Gly | Phe | Leu | Tyr | Phe | Ala | Arg | Arg | Pro |    |  |  |  |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |    |  |  |  |  |
| Pro | Gly | Arg | Pro | Gly | Gly | Gly | Gly | Glu | Met | Glu | Asn | Thr | Leu | Gln |    |  |  |  |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |    |  |  |  |  |
| Leu | Ile | Lys | Phe | His | Leu | Ala | Asn | Arg | Thr | Val | Val | Asp | Ser | Ser |    |  |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |    |  |  |  |  |
| Val | Phe | Pro | Ala | Glu | Gly | Leu | Ile | Pro | Pro | Tyr | Gly | Leu | Thr | Ala |    |  |  |  |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |    |  |  |  |  |
| Asp | Thr | Tyr | Ile | Asp | Leu | Val | Ala | Asp | Glu | Glu | Gly | Leu | Trp | Ala |    |  |  |  |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |    |  |  |  |  |
| Val | Tyr | Ala | Thr | Arg | Glu | Asp | Asp | Arg | His | Leu | Cys | Leu | Ala | Lys |    |  |  |  |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |    |  |  |  |  |
| Leu | Asp | Pro | Gln | Thr | Leu | Asp | Thr | Glu | Gln | Gln | Trp | Asp | Thr | Pro |    |  |  |  |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |    |  |  |  |  |
| Cys | Pro | Arg | Glu | Asn | Ala | Glu | Ala | Ala | Phe | Val | Ile | Cys | Gly | Thr |    |  |  |  |  |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |    |  |  |  |  |
| Leu | Tyr | Val | Val | Tyr | Asn | Thr | Arg | Pro | Ala | Ser | Arg | Ala | Arg | Ile |    |  |  |  |  |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| 335 |     |     |     |     |     |     |     |     | 340 |     |     |     |     | 345 |  |
| Gln | Cys | Ser | Phe | Asp | Ala | Ser | Gly | Thr | Leu | Thr | Pro | Glu | Arg | Ala |  |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |  |
| Ala | Leu | Pro | Tyr | Phe | Pro | Arg | Arg | Tyr | Gly | Ala | His | Ala | Ser | Leu |  |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |  |
| Arg | Tyr | Asn | Pro | Arg | Glu | Arg | Gln | Leu | Tyr | Ala | Trp | Asp | Asp | Gly |  |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |  |
| Tyr | Gln | Ile | Val | Tyr | Lys | Leu | Glu | Met | Arg | Lys | Lys | Glu | Glu | Glu |  |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |  |

Val

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<211> 2052
<212> DNA
<213> Homo sapiens
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| gttctcctct | tctctcta    | ccatccgtca | cctctcctgt | catccgtttc | 150 |
| catgccgtga | ggtccattca  | cagaacacat | ccatggctct | catgctcagt | 200 |
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| gccagacaag | cctgtccagg  | ccttggtg   | ggaggacgca | gcattctcct | 300 |
| gtttcctgtc | tcctaagacc  | aatgcagagg | ccatggaagt | gcggttcttc | 350 |
| aggggccagt | tctctagcgt  | ggtccacctc | tacagggacg | ggaaggacca | 400 |
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| ttggatgctg | gcctctatgg  | gtgcaggatt | agttcccagt | cttactacca | 550 |
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| tttccatcac | gggatatgtt  | gatagagaca | tccagctact | ctgtcagtcc | 650 |
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| ggatttgtcc | acagactcca  | ggacaaacag | agacatgcat | ggcctgtttg | 750 |
| atgtggagat | ctctctgacc  | gtccaagaga | acgccgggag | catatcctgt | 800 |
| tccatgcggc | atgctcatct  | gagccgagag | gtggaatcca | gggtacagat | 850 |



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aa 2052

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<211> 500

<212> PRT

<213> Homo sapiens

<400> 148

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| Ser Gly Gln Trp | Gln Val Phe Gly Pro | Asp Lys Pro Val | Gln Ala |
|                 | 20                  | 25              | 30      |
| Leu Val Gly Glu | Asp Ala Ala Phe Ser | Cys Phe Leu Ser | Pro Lys |
|                 | 35                  | 40              | 45      |
| Thr Asn Ala Glu | Ala Met Glu Val Arg | Phe Phe Arg Gly | Gln Phe |
|                 | 50                  | 55              | 60      |
| Ser Ser Val Val | His Leu Tyr Arg Asp | Gly Lys Asp Gln | Pro Phe |
|                 | 65                  | 70              | 75      |
| Met Gln Met Pro | Gln Tyr Gln Gly Arg | Thr Lys Leu Val | Lys Asp |
|                 | 80                  | 85              | 90      |
| Ser Ile Ala Glu | Gly Arg Ile Ser Leu | Arg Leu Glu Asn | Ile Thr |
|                 | 95                  | 100             | 105     |
| Val Leu Asp Ala | Gly Leu Tyr Gly Cys | Arg Ile Ser Ser | Gln Ser |
|                 | 110                 | 115             | 120     |
| Tyr Tyr Gln Lys | Ala Ile Trp Glu Leu | Gln Val Ser Ala | Leu Gly |
|                 | 125                 | 130             | 135     |
| Ser Val Pro Leu | Ile Ser Ile Thr Gly | Tyr Val Asp Arg | Asp Ile |
|                 | 140                 | 145             | 150     |
| Gln Leu Leu Cys | Gln Ser Ser Gly Trp | Phe Pro Arg Pro | Thr Ala |
|                 | 155                 | 160             | 165     |
| Lys Trp Lys Gly | Pro Gln Gly Gln Asp | Leu Ser Thr Asp | Ser Arg |
|                 | 170                 | 175             | 180     |
| Thr Asn Arg Asp | Met His Gly Leu Phe | Asp Val Glu Ile | Ser Leu |
|                 | 185                 | 190             | 195     |
| Thr Val Gln Glu | Asn Ala Gly Ser Ile | Ser Cys Ser Met | Arg His |
|                 | 200                 | 205             | 210     |
| Ala His Leu Ser | Arg Glu Val Glu Ser | Arg Val Gln Ile | Gly Asp |
|                 | 215                 | 220             | 225     |
| Thr Phe Phe Glu | Pro Ile Ser Trp His | Leu Ala Thr Lys | Val Leu |
|                 | 230                 | 235             | 240     |
| Gly Ile Leu Cys | Cys Gly Leu Phe Phe | Gly Ile Val Gly | Leu Lys |
|                 | 245                 | 250             | 255     |
| Ile Phe Phe Ser | Lys Phe Gln Trp Lys | Ile Gln Ala Glu | Leu Asp |
|                 | 260                 | 265             | 270     |
| Trp Arg Arg Lys | His Gly Gln Ala Glu | Leu Arg Asp Ala | Arg Lys |
|                 | 275                 | 280             | 285     |
| His Ala Val Glu | Val Thr Leu Asp Pro | Glu Thr Ala His | Pro Lys |



| 290                                 | 295                     | 300 |
|-------------------------------------|-------------------------|-----|
| Leu Cys Val Ser Asp Leu Lys Thr Val | Thr His Arg Lys Ala Pro |     |
| 305                                 | 310                     | 315 |
| Gln Glu Val Pro His Ser Glu Lys Arg | Phe Thr Arg Lys Ser Val |     |
| 320                                 | 325                     | 330 |
| Val Ala Ser Gln Ser Phe Gln Ala Gly | Lys His Tyr Trp Glu Val |     |
| 335                                 | 340                     | 345 |
| Asp Gly Gly His Asn Lys Arg Trp Arg | Val Gly Val Cys Arg Asp |     |
| 350                                 | 355                     | 360 |
| Asp Val Asp Arg Arg Lys Glu Tyr Val | Thr Leu Ser Pro Asp His |     |
| 365                                 | 370                     | 375 |
| Gly Tyr Trp Val Leu Arg Leu Asn Gly | Glu His Leu Tyr Phe Thr |     |
| 380                                 | 385                     | 390 |
| Leu Asn Pro Arg Phe Ile Ser Val Phe | Pro Arg Thr Pro Pro Thr |     |
| 395                                 | 400                     | 405 |
| Lys Ile Gly Val Phe Leu Asp Tyr Glu | Cys Gly Thr Ile Ser Phe |     |
| 410                                 | 415                     | 420 |
| Phe Asn Ile Asn Asp Gln Ser Leu Ile | Tyr Thr Leu Thr Cys Arg |     |
| 425                                 | 430                     | 435 |
| Phe Glu Gly Leu Leu Arg Pro Tyr Ile | Glu Tyr Pro Ser Tyr Asn |     |
| 440                                 | 445                     | 450 |
| Glu Gln Asn Gly Thr Pro Ile Val Ile | Cys Pro Val Thr Gln Glu |     |
| 455                                 | 460                     | 465 |
| Ser Glu Lys Glu Ala Ser Trp Gln Arg | Ala Ser Ala Ile Pro Glu |     |
| 470                                 | 475                     | 480 |
| Thr Ser Asn Ser Glu Ser Ser Ser Gln | Ala Thr Thr Pro Phe Leu |     |
| 485                                 | 490                     | 495 |
| Pro Arg Gly Glu Met                 |                         |     |
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&lt;211&gt; 24

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic oligonucleotide probe

&lt;400&gt; 149

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&lt;210&gt; 150

&lt;211&gt; 23



<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 150

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<210> 151

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<212> DNA

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<223> Synthetic oligonucleotide probe

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<212> DNA

<213> Homo sapiens

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| tgttttaaga | acttttagct  | ccttgacaaa  | gaagtgcttt  | atactttagc  | 1900 |
| actaaatatt | ttaaattgctt | tataaatgat  | attatactgt  | tatggaatat  | 1950 |
| tgtatcatat | tgtagtttat  | taaaaatgta  | gaagaggctg  | ggcgcggtgg  | 2000 |
| ctcacgctg  | taatcctagc  | actttgggag  | gccaaggcgg  | gtggatcact  | 2050 |
| tgaggccagg | agttctagat  | gagcctggcc  | agcacagtga  | aaccccgctt  | 2100 |
| ctactaaaaa | tacaaacaaa  | ttagctgggc  | gtggtggcac  | acacctgtag  | 2150 |
| tcccaqctac | tcgggagggt  | gaggcaggag  | aatcggttga  | acccggggagg | 2200 |



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ctggaccctg agcagcttct tgggccctgg tacgtgcttg cggtggcctc 150
ccgggaaaaag ggctttgcc aaggagaagga catgaagaac gtcgtggggg 200
tggtggtgac cctcactcca gaaaacaacc tgcggacgct gtcctctcag 250
cacgggctgg gaggggtgtga ccagagtgtc atggacctga taaagcga 300
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ctccggatgg gtgtttgaga atccctcaat aggcgtgctg gagctctggg 350  
 tgctggccac caacttcaga gactatgcca tcattctcac tcagctggag 400  
 ttccggggacg agcccttcaa caccgtggag ctgtacagtc tgacggagac 450  
 agccagccag gaggccatgg ggctcttcac caagtggagc aggagcctgg 500  
 gcttcctgtc acagtagcag gccagctgc agaaggacct cacctgtgct 550  
 cacaagatcc ttctgtgagt gctgcgtccc cagtagggat ggcgccaca 600  
 gggtcctgtg acctcggcca gtgtccaccc acctcgctca gcggctcccg 650  
 gggcccagca ccagctcaga ataaagcgat tccacagca 689

<210> 158  
 <211> 163  
 <212> PRT  
 <213> Homo sapiens

<400> 158  
 Met Gly Gly Leu Leu Leu Ala Ala Phe Leu Ala Leu Val Ser Val  
 1 5 10 15  
 Pro Arg Ala Gln Ala Val Trp Leu Gly Arg Leu Asp Pro Glu Gln  
 20 25 30  
 Leu Leu Gly Pro Trp Tyr Val Leu Ala Val Ala Ser Arg Glu Lys  
 35 40 45  
 Gly Phe Ala Met Glu Lys Asp Met Lys Asn Val Val Gly Val Val  
 50 55 60  
 Val Thr Leu Thr Pro Glu Asn Asn Leu Arg Thr Leu Ser Ser Gln  
 65 70 75  
 His Gly Leu Gly Gly Cys Asp Gln Ser Val Met Asp Leu Ile Lys  
 80 85 90  
 Arg Asn Ser Gly Trp Val Phe Glu Asn Pro Ser Ile Gly Val Leu  
 95 100 105  
 Glu Leu Trp Val Leu Ala Thr Asn Phe Arg Asp Tyr Ala Ile Ile  
 110 115 120  
 Phe Thr Gln Leu Glu Phe Gly Asp Glu Pro Phe Asn Thr Val Glu  
 125 130 135  
 Leu Tyr Ser Leu Thr Glu Thr Ala Ser Gln Glu Ala Met Gly Leu  
 140 145 150  
 Phe Thr Lys Trp Ser Arg Ser Leu Gly Phe Leu Ser Gln  
 155 160

<210> 159



[illegible]



cttctgccccg ctctcagtg ggggaaggag agctccagta tgcattccctc 1350  
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 caccgagtagc tcggagatca agatccacag atgagaaaact gcagagactc 1450  
 accctgattg agggatcaca gcccctccag gcaagggaga agtcagaggc 1500  
 tgattcttgt agaattaaca gccctcaacg tgatgagcta tgataacact 1550  
 atgaattatg tgcagagtga aaagcacaca ggcttttagag tcaaagtatc 1600  
 tcaaacctga atccacactg tgccctccct tttatttttt taactaaaag 1650  
 acagacaaat tccta 1665

<210> 160

<211> 463

<212> PRT

<213> Homo sapiens

<400> 160

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Leu | Leu | Leu | Leu | Leu | Pro | Leu | Leu | Trp | Gly | Arg | Glu | Arg | Ala | 1   | 5   | 10  | 15 |
| Glu | Gly | Gln | Thr | Ser | Lys | Leu | Leu | Thr | Met | Gln | Ser | Ser | Val | Thr | 20  | 25  | 30  |    |
| Val | Gln | Glu | Gly | Leu | Cys | Val | His | Val | Pro | Cys | Ser | Phe | Ser | Tyr | 35  | 40  | 45  |    |
| Pro | Ser | His | Gly | Trp | Ile | Tyr | Pro | Gly | Pro | Val | Val | His | Gly | Tyr | 50  | 55  | 60  |    |
| Trp | Phe | Arg | Glu | Gly | Ala | Asn | Thr | Asp | Gln | Asp | Ala | Pro | Val | Ala | 65  | 70  | 75  |    |
| Thr | Asn | Asn | Pro | Ala | Arg | Ala | Val | Trp | Glu | Glu | Thr | Arg | Asp | Arg | 80  | 85  | 90  |    |
| Phe | His | Leu | Leu | Gly | Asp | Pro | His | Thr | Lys | Asn | Cys | Thr | Leu | Ser | 95  | 100 | 105 |    |
| Ile | Arg | Asp | Ala | Arg | Arg | Ser | Asp | Ala | Gly | Arg | Tyr | Phe | Phe | Arg | 110 | 115 | 120 |    |
| Met | Glu | Lys | Gly | Ser | Ile | Lys | Trp | Asn | Tyr | Lys | His | His | Arg | Leu | 125 | 130 | 135 |    |
| Ser | Val | Asn | Val | Thr | Ala | Leu | Thr | His | Arg | Pro | Asn | Ile | Leu | Ile | 140 | 145 | 150 |    |
| Pro | Gly | Thr | Leu | Glu | Ser | Gly | Cys | Pro | Gln | Asn | Leu | Thr | Cys | Ser | 155 | 160 | 165 |    |
| Val | Pro | Trp | Ala | Cys | Glu | Gln | Gly | Thr | Pro | Pro | Met | Ile | Ser | Trp | 170 | 175 | 180 |    |









```

<400> 162
Met  Lys  Thr  Leu  Phe  Leu  Gly  Val  Thr  Leu  Gly  Leu  Ala  Ala  Ala
  1              5              10              15

Leu  Ser  Phe  Thr  Leu  Glu  Glu  Glu  Asp  Ile  Thr  Gly  Thr  Trp  Tyr
              20              25              30

Val  Lys  Ala  Met  Val  Val  Asp  Lys  Asp  Phe  Pro  Glu  Asp  Arg  Arg
              35              40              45

Pro  Arg  Lys  Val  Ser  Pro  Val  Lys  Val  Thr  Ala  Leu  Gly  Gly  Gly
              50              55              60

Lys  Leu  Glu  Ala  Thr  Phe  Thr  Phe  Met  Arg  Glu  Asp  Arg  Cys  Ile
              65              70              75

```



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<210> 166
<211> 25
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<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 166  
gcctagtgtt cggaacgca gcttc 25

<210> 167  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 167  
caggacctg gtacgtgaag gccatggtg tcgataagga cttccggag 50

<210> 168  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 168  
ctgtccttca ccctggagga ggaggatc acaggacct ggtac 45

<210> 169  
<211> 1204  
<212> DNA  
<213> Homo sapiens

<400> 169  
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cagaggtctc acagcagcca aggaacctgg ggcccgctcc tccccctcc 100  
aggccatgag gattctgcag ttaatcctgc ttgctctggc aacagggctt 150  
gtagggggag agaccaggat catcaagggg ttcgagtgca agcctcactc 200  
ccagccctgg caggcagccc tgttcgagaa gacgcggcta ctctgtggg 250  
cgacgtcat cgtccccaga tggctcctga cagcagccca ctgcctcaag 300  
ccccgctaca tagttcacct ggggcagcac aacctccaga aggaggagg 350  
ctgtgagcag acccggacag cactgagtc cttccccac cccggcttca 400  
acaacagcct cccaacaaa gaccaccgca atgacatcat gctggtgaag 450  
atggcatcgc cagtctcat cacctgggt gtgcgacccc tcacctctc 500



ctcacgctgt gtcactgctg gcaccagctg cctcatttcc ggctggggca 550  
gcacgtccag cccccagtta cgctgcctc acaccttgcg atgcgccaac 600  
atcaccatca ttgagcacca gaagtgtgag aacgcctacc ccggcaacat 650  
cacagacacc atggtgtgtg ccagcgtgca ggaagggggc aaggactcct 700  
gccaggggtga ctccgggggc cctctggtct gtaaccagtc tcttcaaggc 750  
attatctcct ggggccagga tccgtgtgcg atcacccgaa agcctgggtgt 800  
ctacacgaaa gtctgcaa atgtggactg gatccaggag acgatgaaga 850  
acaattagac tggaccacc caccacagcc catcacctc catttccact 900  
tggtgtttgg ttctgttca ctctgtta atagaaccct aagccaagac 950  
cctctacgaa cattctttgg gcctcctgga ctacaggaga tgctgtcact 1000  
taataatcaa cctgggggttc gaaatcagtg agacctggat tcaaattctg 1050  
ccttgaaata ttgtgactct ggggaatgaca acacctgggt tgttctctgt 1100  
tgtatcccca gcccacaaaga cagctcctgg ccatatatca aggtttcaat 1150  
aaatatttgc taaatgaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1200  
aaaa 1204

<210> 170  
<211> 250  
<212> PRT  
<213> Homo sapiens

<400> 170  
Met Arg Ile Leu Gln Leu Ile Leu Leu Ala Leu Ala Thr Gly Leu  
1 5 10 15  
Val Gly Gly Glu Thr Arg Ile Ile Lys Gly Phe Glu Cys Lys Pro  
20 25 30  
His Ser Gln Pro Trp Gln Ala Ala Leu Phe Glu Lys Thr Arg Leu  
35 40 45  
Leu Cys Gly Ala Thr Leu Ile Ala Pro Arg Trp Leu Leu Thr Ala  
50 55 60  
Ala His Cys Leu Lys Pro Arg Tyr Ile Val His Leu Gly Gln His  
65 70 75  
Asn Leu Gln Lys Glu Glu Gly Cys Glu Gln Thr Arg Thr Ala Thr  
80 85 90  
Glu Ser Phe Pro His Pro Gly Phe Asn Asn Ser Leu Pro Asn Lys  
95 100 105



|   |     |     |
|---|-----|-----|
| Asp His Arg Asn Asp Ile Met Leu Val Lys Met Ala Ser Pro Val |     |     |
| 110   | 115 | 120 |
| Ser Ile Thr Trp Ala Val Arg Pro Leu Thr Leu Ser Ser Arg Cys |     |     |
| 125   | 130 | 135 |
| Val Thr Ala Gly Thr Ser Cys Leu Ile Ser Gly Trp Gly Ser Thr |     |     |
| 140   | 145 | 150 |
| Ser Ser Pro Gln Leu Arg Leu Pro His Thr Leu Arg Cys Ala Asn |     |     |
| 155   | 160 | 165 |
| Ile Thr Ile Ile Glu His Gln Lys Cys Glu Asn Ala Tyr Pro Gly |     |     |
| 170   | 175 | 180 |
| Asn Ile Thr Asp Thr Met Val Cys Ala Ser Val Gln Glu Gly Gly |     |     |
| 185   | 190 | 195 |
| Lys Asp Ser Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Asn |     |     |
| 200   | 205 | 210 |
| Gln Ser Leu Gln Gly Ile Ile Ser Trp Gly Gln Asp Pro Cys Ala |     |     |
| 215   | 220 | 225 |
| Ile Thr Arg Lys Pro Gly Val Tyr Thr Lys Val Cys Lys Tyr Val |     |     |
| 230   | 235 | 240 |
| Asp Trp Ile Gln Glu Thr Met Lys Asn Asn                     |     |     |
| 245   | 250 |     |

<210> 171

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 171

ggctgcggga ctggaagtca tcggg 25

<210> 172

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 172

ctccaggcca tgaggattct gcag 24

<210> 173

<211> 18

<212> DNA

<213> Artificial Sequence



11-11-61

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 173

cctctggtct gtaaccag 18

<210> 174

<211> 24

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 174

tctgtgatgt tgccggggta ggcg 24

<210> 175

<211> 25

<212> DNA

### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 175

cgtgtagaca ccaggctttc ggggtg 25

<210> 176

<211> 18

<212> DNA

### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 176

cccttgatga tcctgggc 18

<210> 177

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 177

aggccatgag gattctgcag ttaatcctgc ttgctctggc aacagggctt 50

<210> 178

<211> 43

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe



<400> 178  
gagagaccag gatcatcaag gggttcgagt gcaagcctca ctc 43

<210> 179  
<211> 907  
<212> DNA  
<213> Homo sapiens

<400> 179  
gagcagtgtt ctgctggagc cgatgccaaa aaccatgcat ttcttattca 50  
gattcattgt tttcttttat ctgtggggcc tttttactgc tcagagacaa 100  
aagaaagagg agagcaccga agaagtgaaa atagaagttt tgcacgtcc 150  
agaaaactgc tctaagacaa gcaagaaggg agacctacta aatgcccatt 200  
atgacggcta cctggctaaa gacggctcga aattctactg cagccggaca 250  
caaatgaag gccaccccaa atggtttggt cttggtgttg ggcaagtcac 300  
aaaaggccta gacattgcta tgacagatat gtgccctgga gaaaagcgaa 350  
aagtagttat acccccttca tttgcatacg gaaaggaagg ctatgcagaa 400  
ggcaagattc caccggatgc tacattgatt tttgagattg aactttatgc 450  
tgtgaccaa ggaccacgga gcattgagac atttaaaca atagacatgg 500  
acaatgacag gcagctctct aaagccgaga taaacctcta cttgcaaagg 550  
gaatttgaaa aagatgagaa gccacgtgac aagtcatatc aggatgcagt 600  
tttagaagat atttttaaga agaatgacca tgatggtgat ggcttcattt 650  
ctcccaagga atacaatgta taccaacacg atgaactata gcatatttgt 700  
atttctactt ttttttttta gctatttact gtactttatg tataaaacaa 750  
agtcactttt ctccaagttg tatttgctat tttccccta tgagaagata 800  
ttttgatctc cccaatacat tgattttggt ataataaatg tgaggctggt 850  
ttgcaaactt aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 900  
aaaaaaa 907

<210> 180  
<211> 222  
<212> PRT  
<213> Homo sapiens

<400> 180  
Met Pro Lys Thr Met His Phe Leu Phe Arg Phe Ile Val Phe Phe  
1 5 10 15



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Tyr | Leu | Trp | Gly | Leu | Phe | Thr | Ala | Gln | Arg | Gln | Lys | Lys | Glu | Glu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ser | Thr | Glu | Glu | Val | Lys | Ile | Glu | Val | Leu | His | Arg | Pro | Glu | Asn |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Cys | Ser | Lys | Thr | Ser | Lys | Lys | Gly | Asp | Leu | Leu | Asn | Ala | His | Tyr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Asp | Gly | Tyr | Leu | Ala | Lys | Asp | Gly | Ser | Lys | Phe | Tyr | Cys | Ser | Arg |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Thr | Gln | Asn | Glu | Gly | His | Pro | Lys | Trp | Phe | Val | Leu | Gly | Val | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Gln | Val | Ile | Lys | Gly | Leu | Asp | Ile | Ala | Met | Thr | Asp | Met | Cys | Pro |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gly | Glu | Lys | Arg | Lys | Val | Val | Ile | Pro | Pro | Ser | Phe | Ala | Tyr | Gly |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Lys | Glu | Gly | Tyr | Ala | Glu | Gly | Lys | Ile | Pro | Pro | Asp | Ala | Thr | Leu |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ile | Phe | Glu | Ile | Glu | Leu | Tyr | Ala | Val | Thr | Lys | Gly | Pro | Arg | Ser |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Ile | Glu | Thr | Phe | Lys | Gln | Ile | Asp | Met | Asp | Asn | Asp | Arg | Gln | Leu |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ser | Lys | Ala | Glu | Ile | Asn | Leu | Tyr | Leu | Gln | Arg | Glu | Phe | Glu | Lys |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Asp | Glu | Lys | Pro | Arg | Asp | Lys | Ser | Tyr | Gln | Asp | Ala | Val | Leu | Glu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Asp | Ile | Phe | Lys | Lys | Asn | Asp | His | Asp | Gly | Asp | Gly | Phe | Ile | Ser |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Pro | Lys | Glu | Tyr | Asn | Val | Tyr | Gln | His | Asp | Glu | Leu |     |     |     |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     |     |

<210> 181

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 181

gtgttctgct ggagccgatg cc 22

<210> 182

<211> 18

<212> DNA

<213> Artificial Sequence



<220>  
<223> Synthetic oligonucleotide probe

<400> 182  
gacatggaca atgacagg 18

<210> 183  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 183  
cctttcagga tgtaggag 18

<210> 184  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 184  
gatgtctgcc accccaag 18

<210> 185  
<211> 27  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 185  
gcatacctgat atgacttgat acgtggc 27

<210> 186  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 186  
tacaagaggg aagaggagtt gcac 24

<210> 187  
<211> 52  
<212> DNA  
<213> Artificial Sequence

<220>



<223> Synthetic oligonucleotide probe

<400> 187

gccattatg acggctacct ggctaaagac ggctcgaaat tctactgcag 50

cc 52

<210> 188

<211> 573

<212> DNA

<213> Homo sapiens

<400> 188

cagaaatgca gggaccattg cttcttccag gcctctgctt tctgctgagc 50

ctcttttgag ctgtgactca gaaaacaaaa acttcctgtg ctaagtgcc 100

cccaaagtct tctgtgtca ataactca ctgcacctgc aaccatggat 150

atacttctgg atctgggcag aaactattca cattcccctt ggagacatgt 200

aacgccaggc atggtggctc gcgcctgtaa tcccagttct ttgggaagcc 250

aaggcaggtg gatcacctga ggtcaggagt ttgagaccag cctggccaac 300

atagtgaac cccgtgtcta ctaaaaatac aaaaatcagc cgggcgtggt 350

ggtgcatgcc tgcaatccca gttactcggg aggctgaggc aggagaatcg 400

cttgaactca ggaggcagaa gttgcagtga acccagatcc tgccattgca 450

ctccagcatg gatgacagag caagactccg tctcaaaaag aaaagatagt 500

ttcttgtttc atttcgcgac tgccctctca gtgtttcctg ggatcccctc 550

ccaaataaag tacttatatt ctc 573

<210> 189

<211> 74

<212> PRT

<213> Homo sapiens

<400> 189

Met Gln Gly Pro Leu Leu Leu Pro Gly Leu Cys Phe Leu Leu Ser  
1 5 10 15

Leu Phe Gly Ala Val Thr Gln Lys Thr Lys Thr Ser Cys Ala Lys  
20 25 30

Cys Pro Pro Asn Ala Ser Cys Val Asn Asn Thr His Cys Thr Cys  
35 40 45

Asn His Gly Tyr Thr Ser Gly Ser Gly Gln Lys Leu Phe Thr Phe  
50 55 60

Pro Leu Glu Thr Cys Asn Ala Arg His Gly Gly Ser Arg Leu  
65 70



<210> 190  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 190  
agggaccatt gcttcttcca ggcc 24

<210> 191  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 191  
cgttacatgt ctccaagggg aatg 24

<210> 192  
<211> 50  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 192  
cctgtgctaa gtgccccca aatgcttctt gtgtcaataa cactcactgc 50

<210> 193  
<211> 1091  
<212> DNA  
<213> Homo sapiens

<400> 193  
caagcaggtc atccccttgg tgaccttcaa agagaagcag agagggcaga 50  
ggtaggggggc acagggaaag ggtgacctct gagattcccc ttttccccca 100  
gactttggaa gtgaccacc atggggctca gcatcttttt gctcctgtgt 150  
gttcttgggc tcagccaggc agccacaccg aagattttca atggcactga 200  
gtgtgggcgt aactcacagc cgtggcaggt ggggctgttt gagggcacca 250  
gcctgcgctg cgggggtgtc cttattgacc acaggtgggt cctcacagcg 300  
gctcactgca gcggcagcag gtactgggtg cgctggggg aacacagcct 350  
cagccagctc gactggaccg agcagatccg gcacagcggc ttctctgtga 400  
cccatcccg ctacctgga gcctcgacga gccacgagca cgacctccg 450



ctgctgcggc tgcgcctgcc cgtccgcgta accagcagcg ttcaaccctt 500  
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 gctggggcat caccaaccac ccacggaacc cattccccgga tctgctccag 600  
 tgccctcaacc tctccatcgt ctcccatgcc acctgccatg gtgtgtatcc 650  
 cgggagaatc acgagcaaca tgggtgtgtgc aggcggcgtc ccggggcagg 700  
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 caaggtctgg tgtcctgggg gtctgtgggg ccctgtggac aagatggcat 800  
 ccctggagtc tacacctata ttgcaagta tgtggactgg atccggatga 850  
 tcatgaggaa caactgacct gtttcctcca cctccacccc cacccttaa 900  
 cttgggtacc cctctggccc tcagagcacc aatatctcct ccatcacttc 950  
 ccctagctcc actcttgttg gcctgggaac ttcttgggaac tttaactcct 1000  
 gccagccctt ctaagacca cgagcggggg gagagaagtg tgcaatagtc 1050  
 tggaataaat ataatgaag gaggggcaaa aaaaaaaaaa a 1091

<210> 194  
 <211> 248  
 <212> PRT  
 <213> Homo sapiens

<400> 194  
 Met Gly Leu Ser Ile Phe Leu Leu Leu Cys Val Leu Gly Leu Ser  
 1 5 10 15  
 Gln Ala Ala Thr Pro Lys Ile Phe Asn Gly Thr Glu Cys Gly Arg  
 20 25 30  
 Asn Ser Gln Pro Trp Gln Val Gly Leu Phe Glu Gly Thr Ser Leu  
 35 40 45  
 Arg Cys Gly Gly Val Leu Ile Asp His Arg Trp Val Leu Thr Ala  
 50 55 60  
 Ala His Cys Ser Gly Ser Arg Tyr Trp Val Arg Leu Gly Glu His  
 65 70 75  
 Ser Leu Ser Gln Leu Asp Trp Thr Glu Gln Ile Arg His Ser Gly  
 80 85 90  
 Phe Ser Val Thr His Pro Gly Tyr Leu Gly Ala Ser Thr Ser His  
 95 100 105  
 Glu His Asp Leu Arg Leu Leu Arg Leu Arg Leu Pro Val Arg Val  
 110 115 120



Thr Ser Ser Val Gln Pro Leu Pro Leu Pro Asn Asp Cys Ala Thr  
 125 130 135  
 Ala Gly Thr Glu Cys His Val Ser Gly Trp Gly Ile Thr Asn His  
 140 145 150  
 Pro Arg Asn Pro Phe Pro Asp Leu Leu Gln Cys Leu Asn Leu Ser  
 155 160 165  
 Ile Val Ser His Ala Thr Cys His Gly Val Tyr Pro Gly Arg Ile  
 170 175 180  
 Thr Ser Asn Met Val Cys Ala Gly Gly Val Pro Gly Gln Asp Ala  
 185 190 195  
 Cys Gln Gly Asp Ser Gly Gly Pro Leu Val Cys Gly Gly Val Leu  
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<211> 150

<212> PRT

<213> Homo sapiens

<400> 196

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Gly | Glu | Leu | Ser | Asn | Arg | Phe | Gln | Gly | Gly | Lys | Ala | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Leu | Leu | Lys | Ala | Arg | Gln | Glu | Arg | Arg | Leu | Ala | Glu | Ile | Asn |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Glu | Phe | Leu | Cys | Asp | Gln | Lys | Tyr | Ser | Asp | Glu | Glu | Asn | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Pro | Glu | Lys | Leu | Thr | Ala | Phe | Lys | Glu | Lys | Tyr | Met | Glu | Phe | Asp |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Asn | Asn | Glu | Gly | Glu | Ile | Asp | Leu | Met | Ser | Leu | Lys | Arg | Met |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |



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| tgcattctgga | agacaaccag  | gtcagcgtca | tcgagagagg | cgccttccag | 400 |
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| tgaccaatta | caccttcagt | aacatgtctc | acctctccac | tctgatcctg | 2500 |
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| Lys | Lys | Leu | Lys | Arg | Ile | Asp | Ile | Ser | Lys | Asn | Gln | Ile | Ser | Asp |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Ile | Ala | Pro | Asp | Ala | Phe | Gln | Gly | Leu | Lys | Ser | Leu | Thr | Ser | Leu |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Val | Leu | Tyr | Gly | Asn | Lys | Ile | Thr | Glu | Ile | Ala | Lys | Gly | Leu | Phe |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Asp | Gly | Leu | Val | Ser | Leu | Gln | Leu | Leu | Leu | Leu | Asn | Ala | Asn | Lys |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Ile | Asn | Cys | Leu | Arg | Val | Asn | Thr | Phe | Gln | Asp | Leu | Gln | Asn | Leu |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Asn | Leu | Leu | Ser | Leu | Tyr | Asp | Asn | Lys | Leu | Gln | Thr | Ile | Ser | Lys |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Gly | Leu | Phe | Ala | Pro | Leu | Gln | Ser | Ile | Gln | Thr | Leu | His | Leu | Ala |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Gln | Asn | Pro | Phe | Val | Cys | Asp | Cys | His | Leu | Lys | Trp | Leu | Ala | Asp |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |
| Tyr | Leu | Gln | Asp | Asn | Pro | Ile | Glu | Thr | Ser | Gly | Ala | Arg | Cys | Ser |
|     |     |     |     | 455 |     |     |     |     | 460 |     |     |     |     | 465 |
| Ser | Pro | Arg | Arg | Leu | Ala | Asn | Lys | Arg | Ile | Ser | Gln | Ile | Lys | Ser |
|     |     |     |     | 470 |     |     |     |     | 475 |     |     |     |     | 480 |
| Lys | Lys | Phe | Arg | Cys | Ser | Gly | Ser | Glu | Asp | Tyr | Arg | Ser | Arg | Phe |
|     |     |     |     | 485 |     |     |     |     | 490 |     |     |     |     | 495 |
| Ser | Ser | Glu | Cys | Phe | Met | Asp | Leu | Val | Cys | Pro | Glu | Lys | Cys | Arg |
|     |     |     |     | 500 |     |     |     |     | 505 |     |     |     |     | 510 |
| Cys | Glu | Gly | Thr | Ile | Val | Asp | Cys | Ser | Asn | Gln | Lys | Leu | Val | Arg |
|     |     |     |     | 515 |     |     |     |     | 520 |     |     |     |     | 525 |
| Ile | Pro | Ser | His | Leu | Pro | Glu | Tyr | Val | Thr | Asp | Leu | Arg | Leu | Asn |
|     |     |     |     | 530 |     |     |     |     | 535 |     |     |     |     | 540 |
| Asp | Asn | Glu | Val | Ser | Val | Leu | Glu | Ala | Thr | Gly | Ile | Phe | Lys | Lys |
|     |     |     |     | 545 |     |     |     |     | 550 |     |     |     |     | 555 |
| Leu | Pro | Asn | Leu | Arg | Lys | Ile | Asn | Leu | Ser | Asn | Asn | Lys | Ile | Lys |
|     |     |     |     | 560 |     |     |     |     | 565 |     |     |     |     | 570 |
| Glu | Val | Arg | Glu | Gly | Ala | Phe | Asp | Gly | Ala | Ala | Ser | Val | Gln | Glu |
|     |     |     |     | 575 |     |     |     |     | 580 |     |     |     |     | 585 |
| Leu | Met | Leu | Thr | Gly | Asn | Gln | Leu | Glu | Thr | Val | His | Gly | Arg | Val |
|     |     |     |     | 590 |     |     |     |     | 595 |     |     |     |     | 600 |
| Phe | Arg | Gly | Leu | Ser | Gly | Leu | Lys | Thr | Leu | Met | Leu | Arg | Ser | Asn |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |  |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|
|     |     |     |     | 605        |     |     |     |     | 610        |     |     |     |     | 615        |  |
| Leu | Ile | Ser | Cys | Val<br>620 | Ser | Asn | Asp | Thr | Phe<br>625 | Ala | Gly | Leu | Ser | Ser<br>630 |  |
| Val | Arg | Leu | Leu | Ser<br>635 | Leu | Tyr | Asp | Asn | Arg<br>640 | Ile | Thr | Thr | Ile | Thr<br>645 |  |
| Pro | Gly | Ala | Phe | Thr<br>650 | Thr | Leu | Val | Ser | Leu<br>655 | Ser | Thr | Ile | Asn | Leu<br>660 |  |
| Leu | Ser | Asn | Pro | Phe<br>665 | Asn | Cys | Asn | Cys | His<br>670 | Leu | Ala | Trp | Leu | Gly<br>675 |  |
| Lys | Trp | Leu | Arg | Lys<br>680 | Arg | Arg | Ile | Val | Ser<br>685 | Gly | Asn | Pro | Arg | Cys<br>690 |  |
| Gln | Lys | Pro | Phe | Phe<br>695 | Leu | Lys | Glu | Ile | Pro<br>700 | Ile | Gln | Asp | Val | Ala<br>705 |  |
| Ile | Gln | Asp | Phe | Thr<br>710 | Cys | Asp | Gly | Asn | Glu<br>715 | Glu | Ser | Ser | Cys | Gln<br>720 |  |
| Leu | Ser | Pro | Arg | Cys<br>725 | Pro | Glu | Gln | Cys | Thr<br>730 | Cys | Met | Glu | Thr | Val<br>735 |  |
| Val | Arg | Cys | Ser | Asn<br>740 | Lys | Gly | Leu | Arg | Ala<br>745 | Leu | Pro | Arg | Gly | Met<br>750 |  |
| Pro | Lys | Asp | Val | Thr<br>755 | Glu | Leu | Tyr | Leu | Glu<br>760 | Gly | Asn | His | Leu | Thr<br>765 |  |
| Ala | Val | Pro | Arg | Glu<br>770 | Leu | Ser | Ala | Leu | Arg<br>775 | His | Leu | Thr | Leu | Ile<br>780 |  |
| Asp | Leu | Ser | Asn | Asn<br>785 | Ser | Ile | Ser | Met | Leu<br>790 | Thr | Asn | Tyr | Thr | Phe<br>795 |  |
| Ser | Asn | Met | Ser | His<br>800 | Leu | Ser | Thr | Leu | Ile<br>805 | Leu | Ser | Tyr | Asn | Arg<br>810 |  |
| Leu | Arg | Cys | Ile | Pro<br>815 | Val | His | Ala | Phe | Asn<br>820 | Gly | Leu | Arg | Ser | Leu<br>825 |  |
| Arg | Val | Leu | Thr | Leu<br>830 | His | Gly | Asn | Asp | Ile<br>835 | Ser | Ser | Val | Pro | Glu<br>840 |  |
| Gly | Ser | Phe | Asn | Asp<br>845 | Leu | Thr | Ser | Leu | Ser<br>850 | His | Leu | Ala | Leu | Gly<br>855 |  |
| Thr | Asn | Pro | Leu | His<br>860 | Cys | Asp | Cys | Ser | Leu<br>865 | Arg | Trp | Leu | Ser | Glu<br>870 |  |
| Trp | Val | Lys | Ala | Gly<br>875 | Tyr | Lys | Glu | Pro | Gly<br>880 | Ile | Ala | Arg | Cys | Ser<br>885 |  |
| Ser | Pro | Glu | Pro | Met        | Ala | Asp | Arg | Leu | Leu        | Leu | Thr | Thr | Pro | Thr        |  |



|     |     |     |     |             |     |     |     |     |             |     |     |     |     |             |     |  |  |  |  |
|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-------------|-----|--|--|--|--|
| 890 |     |     |     |             |     |     |     |     |             | 895 |     |     |     |             | 900 |  |  |  |  |
| His | Arg | Phe | Gln | Cys<br>905  | Lys | Gly | Pro | Val | Asp<br>910  | Ile | Asn | Ile | Val | Ala<br>915  |     |  |  |  |  |
| Lys | Cys | Asn | Ala | Cys<br>920  | Leu | Ser | Ser | Pro | Cys<br>925  | Lys | Asn | Asn | Gly | Thr<br>930  |     |  |  |  |  |
| Cys | Thr | Gln | Asp | Pro<br>935  | Val | Glu | Leu | Tyr | Arg<br>940  | Cys | Ala | Cys | Pro | Tyr<br>945  |     |  |  |  |  |
| Ser | Tyr | Lys | Gly | Lys<br>950  | Asp | Cys | Thr | Val | Pro<br>955  | Ile | Asn | Thr | Cys | Ile<br>960  |     |  |  |  |  |
| Gln | Asn | Pro | Cys | Gln<br>965  | His | Gly | Gly | Thr | Cys<br>970  | His | Leu | Ser | Asp | Ser<br>975  |     |  |  |  |  |
| His | Lys | Asp | Gly | Phe<br>980  | Ser | Cys | Ser | Cys | Pro<br>985  | Leu | Gly | Phe | Glu | Gly<br>990  |     |  |  |  |  |
| Gln | Arg | Cys | Glu | Ile<br>995  | Asn | Pro | Asp | Asp | Cys<br>1000 | Glu | Asp | Asn | Asp | Cys<br>1005 |     |  |  |  |  |
| Glu | Asn | Asn | Ala | Thr<br>1010 | Cys | Val | Asp | Gly | Ile<br>1015 | Asn | Asn | Tyr | Val | Cys<br>1020 |     |  |  |  |  |
| Ile | Cys | Pro | Pro | Asn<br>1025 | Tyr | Thr | Gly | Glu | Leu<br>1030 | Cys | Asp | Glu | Val | Ile<br>1035 |     |  |  |  |  |
| Asp | His | Cys | Val | Pro<br>1040 | Glu | Leu | Asn | Leu | Cys<br>1045 | Gln | His | Glu | Ala | Lys<br>1050 |     |  |  |  |  |
| Cys | Ile | Pro | Leu | Asp<br>1055 | Lys | Gly | Phe | Ser | Cys<br>1060 | Glu | Cys | Val | Pro | Gly<br>1065 |     |  |  |  |  |
| Tyr | Ser | Gly | Lys | Leu<br>1070 | Cys | Glu | Thr | Asp | Asn<br>1075 | Asp | Asp | Cys | Val | Ala<br>1080 |     |  |  |  |  |
| His | Lys | Cys | Arg | His<br>1085 | Gly | Ala | Gln | Cys | Val<br>1090 | Asp | Thr | Ile | Asn | Gly<br>1095 |     |  |  |  |  |
| Tyr | Thr | Cys | Thr | Cys<br>1100 | Pro | Gln | Gly | Phe | Ser<br>1105 | Gly | Pro | Phe | Cys | Glu<br>1110 |     |  |  |  |  |
| His | Pro | Pro | Pro | Met<br>1115 | Val | Leu | Leu | Gln | Thr<br>1120 | Ser | Pro | Cys | Asp | Gln<br>1125 |     |  |  |  |  |
| Tyr | Glu | Cys | Gln | Asn<br>1130 | Gly | Ala | Gln | Cys | Ile<br>1135 | Val | Val | Gln | Gln | Glu<br>1140 |     |  |  |  |  |
| Pro | Thr | Cys | Arg | Cys<br>1145 | Pro | Pro | Gly | Phe | Ala<br>1150 | Gly | Pro | Arg | Cys | Glu<br>1155 |     |  |  |  |  |
| Lys | Leu | Ile | Thr | Val<br>1160 | Asn | Phe | Val | Gly | Lys<br>1165 | Asp | Ser | Tyr | Val | Glu<br>1170 |     |  |  |  |  |
| Leu | Ala | Ser | Ala | Lys         | Val | Arg | Pro | Gln | Ala         | Asn | Ile | Ser | Leu | Gln         |     |  |  |  |  |



|     |     |     |     |      |     |     |     |     |      |     |     |     |     |      |  |
|-----|-----|-----|-----|------|-----|-----|-----|-----|------|-----|-----|-----|-----|------|--|
|     |     |     |     | 1175 |     |     |     |     | 1180 |     |     |     |     | 1185 |  |
| Val | Ala | Thr | Asp | Lys  | Asp | Asn | Gly | Ile | Leu  | Leu | Tyr | Lys | Gly | Asp  |  |
|     |     |     |     | 1190 |     |     |     |     | 1195 |     |     |     |     | 1200 |  |
| Asn | Asp | Pro | Leu | Ala  | Leu | Glu | Leu | Tyr | Gln  | Gly | His | Val | Arg | Leu  |  |
|     |     |     |     | 1205 |     |     |     |     | 1210 |     |     |     |     | 1215 |  |
| Val | Tyr | Asp | Ser | Leu  | Ser | Ser | Pro | Pro | Thr  | Thr | Val | Tyr | Ser | Val  |  |
|     |     |     |     | 1220 |     |     |     |     | 1225 |     |     |     |     | 1230 |  |
| Glu | Thr | Val | Asn | Asp  | Gly | Gln | Phe | His | Ser  | Val | Glu | Leu | Val | Thr  |  |
|     |     |     |     | 1235 |     |     |     |     | 1240 |     |     |     |     | 1245 |  |
| Leu | Asn | Gln | Thr | Leu  | Asn | Leu | Val | Val | Asp  | Lys | Gly | Thr | Pro | Lys  |  |
|     |     |     |     | 1250 |     |     |     |     | 1255 |     |     |     |     | 1260 |  |
| Ser | Leu | Gly | Lys | Leu  | Gln | Lys | Gln | Pro | Ala  | Val | Gly | Ile | Asn | Ser  |  |
|     |     |     |     | 1265 |     |     |     |     | 1270 |     |     |     |     | 1275 |  |
| Pro | Leu | Tyr | Leu | Gly  | Gly | Ile | Pro | Thr | Ser  | Thr | Gly | Leu | Ser | Ala  |  |
|     |     |     |     | 1280 |     |     |     |     | 1285 |     |     |     |     | 1290 |  |
| Leu | Arg | Gln | Gly | Thr  | Asp | Arg | Pro | Leu | Gly  | Gly | Phe | His | Gly | Cys  |  |
|     |     |     |     | 1295 |     |     |     |     | 1300 |     |     |     |     | 1305 |  |
| Ile | His | Glu | Val | Arg  | Ile | Asn | Asn | Glu | Leu  | Gln | Asp | Phe | Lys | Ala  |  |
|     |     |     |     | 1310 |     |     |     |     | 1315 |     |     |     |     | 1320 |  |
| Leu | Pro | Pro | Gln | Ser  | Leu | Gly | Val | Ser | Pro  | Gly | Cys | Lys | Ser | Cys  |  |
|     |     |     |     | 1325 |     |     |     |     | 1330 |     |     |     |     | 1335 |  |
| Thr | Val | Cys | Lys | His  | Gly | Leu | Cys | Arg | Ser  | Val | Glu | Lys | Asp | Ser  |  |
|     |     |     |     | 1340 |     |     |     |     | 1345 |     |     |     |     | 1350 |  |
| Val | Val | Cys | Glu | Cys  | Arg | Pro | Gly | Trp | Thr  | Gly | Pro | Leu | Cys | Asp  |  |
|     |     |     |     | 1355 |     |     |     |     | 1360 |     |     |     |     | 1365 |  |
| Gln | Glu | Ala | Arg | Asp  | Pro | Cys | Leu | Gly | His  | Arg | Cys | His | His | Gly  |  |
|     |     |     |     | 1370 |     |     |     |     | 1375 |     |     |     |     | 1380 |  |
| Lys | Cys | Val | Ala | Thr  | Gly | Thr | Ser | Tyr | Met  | Cys | Lys | Cys | Ala | Glu  |  |
|     |     |     |     | 1385 |     |     |     |     | 1390 |     |     |     |     | 1395 |  |
| Gly | Tyr | Gly | Gly | Asp  | Leu | Cys | Asp | Asn | Lys  | Asn | Asp | Ser | Ala | Asn  |  |
|     |     |     |     | 1400 |     |     |     |     | 1405 |     |     |     |     | 1410 |  |
| Ala | Cys | Ser | Ala | Phe  | Lys | Cys | His | His | Gly  | Gln | Cys | His | Ile | Ser  |  |
|     |     |     |     | 1415 |     |     |     |     | 1420 |     |     |     |     | 1425 |  |
| Asp | Gln | Gly | Glu | Pro  | Tyr | Cys | Leu | Cys | Gln  | Pro | Gly | Phe | Ser | Gly  |  |
|     |     |     |     | 1430 |     |     |     |     | 1435 |     |     |     |     | 1440 |  |
| Glu | His | Cys | Gln | Gln  | Glu | Asn | Pro | Cys | Leu  | Gly | Gln | Val | Val | Arg  |  |
|     |     |     |     | 1445 |     |     |     |     | 1450 |     |     |     |     | 1455 |  |
| Glu | Val | Ile | Arg | Arg  | Gln | Lys | Gly | Tyr | Ala  | Ser | Cys | Ala | Thr | Ala  |  |



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<212> DNA
<213> Artificial Sequence
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<220>  
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<211> 24
<212> DNA
<213> Artificial Sequence
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<220>  
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<212> DNA
<213> Artificial Sequence
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<212> DNA
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gtttcttccg cagactcaac tgagaagtca gcctctgggg caggcaccag 100
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Arg Asp Leu Ser Glu Trp Lys Lys Gly Cys Glu Val Ser  
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<210> 205  
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<220>  
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<210> 207  
 <211> 24  
 <212> DNA  
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<220>  
 <223> Synthetic oligonucleotide probe

<400> 207  
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<210> 208  
 <211> 47  
 <212> DNA  
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<220>



<223> Synthetic oligonucleotide probe

<400> 208

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<210> 209

<211> 1648

<212> DNA

<213> Homo sapiens

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tattaaaact tgtacatggc tccccattgg tttttggaga aaagttcaag 150

ctttttacct tgggtgtctgc ctgtatccca gtgttcaggc tggctagacg 200

gcggaagaag atcctatttt actgtcactt cccagatctg cttctcacca 250

agagagattc ttttcttaaa cgactataca gggccccaat tgactggata 300

gaggaatata ccacaggcat ggcagactgc atcttagtca acagccagtt 350

cacagctgct gtttttaagg aaacattcaa gtccctgtct cacatagacc 400

ctgatgtcct ctatccatct ctaaattgtca ccagctttga ctcagttgtt 450

cctgaaaagc tggatgacct agtccccaag gggaaaaaat tcttctgtct 500

ctccatcaac agatacgaaa ggaagaaaaa tctgactttg gacttggaag 550

ccctagtaca gctgcgtgga agattgacat cccaagattg ggagaggggt 600

catctgatcg tggcaggtgg ttatgacgag agagtcctgg agaattgtga 650

acattatcag gaattgaaga aaatgggtcca acagtccgac cttggccagt 700

atgtgacctt cttgaggtct ttctcagaca aacagaaaat ctccctcctc 750

cacagctgca cgtgtgtgct ttacacacca agcaatgagc actttggcat 800

tgtccctctg gaagccatgt acatgcagtg cccagtcatt gctgttaatt 850

cggttggaacc cttggagtcc attgaccaca gtgtcacagg gtttctgtgt 900

gagcctgacc cgggtgcactt ctcagaagca atagaaaagt tcatccgtga 950

accttcctta aaagccacca tgggcctggc tggaagagcc agagtgaagg 1000

aaaaattttc cctgaagca ttacagaaac agctctaccg atatgttacc 1050

aaactgctgg tataatcaga ttgtttttta gatctccatt aatgtcattt 1100

ttatggattg tagaccaggt ttgaaacca aaaaagaaac ctagaatcta 1150



atgcagaaga gatcttttaa aaaataaact tgagtcttga atgtgagcca 1200  
 ctttcctata taccacacct ccctgtccac ttttcagaaa aaccatgtct 1250  
 tttatgctat aatcattcca aattttgcca gtgttaagtt acaaagtgg 1300  
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 tgctcttctg tctataaatt ttgaatgata ctgtgcctta attggTTTTc 1400  
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 ataatgagag cagggtatt gtagttccca gattcaatcc accgaagtgt 1500  
 tcaactgtcat ctgttaggga atTTTtgTTT gtctgtctt tgcctggatc 1550  
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 actgagatat aataaaaggt gtttatcata aaaaaaaaaa aaaaaaaaa 1648

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 <212> PRT  
 <213> Homo sapiens

<400> 210  
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 Glu Lys Phe Lys Leu Phe Thr Leu Val Ser Ala Cys Ile Pro Val  
 20 25 30  
 Phe Arg Leu Ala Arg Arg Arg Lys Lys Ile Leu Phe Tyr Cys His  
 35 40 45  
 Phe Pro Asp Leu Leu Leu Thr Lys Arg Asp Ser Phe Leu Lys Arg  
 50 55 60  
 Leu Tyr Arg Ala Pro Ile Asp Trp Ile Glu Glu Tyr Thr Thr Gly  
 65 70 75  
 Met Ala Asp Cys Ile Leu Val Asn Ser Gln Phe Thr Ala Ala Val  
 80 85 90  
 Phe Lys Glu Thr Phe Lys Ser Leu Ser His Ile Asp Pro Asp Val  
 95 100 105  
 Leu Tyr Pro Ser Leu Asn Val Thr Ser Phe Asp Ser Val Val Pro  
 110 115 120  
 Glu Lys Leu Asp Asp Leu Val Pro Lys Gly Lys Lys Phe Leu Leu  
 125 130 135  
 Leu Ser Ile Asn Arg Tyr Glu Arg Lys Lys Asn Leu Thr Leu Ala  
 140 145 150  
 Leu Glu Ala Leu Val Gln Leu Arg Gly Arg Leu Thr Ser Gln Asp



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |  |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|
|     |     |     |     | 155        |     |     |     |     | 160        |     |     |     |     | 165        |  |
| Trp | Glu | Arg | Val | His<br>170 | Leu | Ile | Val | Ala | Gly<br>175 | Gly | Tyr | Asp | Glu | Arg<br>180 |  |
| Val | Leu | Glu | Asn | Val<br>185 | Glu | His | Tyr | Gln | Glu<br>190 | Leu | Lys | Lys | Met | Val<br>195 |  |
| Gln | Gln | Ser | Asp | Leu<br>200 | Gly | Gln | Tyr | Val | Thr<br>205 | Phe | Leu | Arg | Ser | Phe<br>210 |  |
| Ser | Asp | Lys | Gln | Lys<br>215 | Ile | Ser | Leu | Leu | His<br>220 | Ser | Cys | Thr | Cys | Val<br>225 |  |
| Leu | Tyr | Thr | Pro | Ser<br>230 | Asn | Glu | His | Phe | Gly<br>235 | Ile | Val | Pro | Leu | Glu<br>240 |  |
| Ala | Met | Tyr | Met | Gln<br>245 | Cys | Pro | Val | Ile | Ala<br>250 | Val | Asn | Ser | Gly | Gly<br>255 |  |
| Pro | Leu | Glu | Ser | Ile<br>260 | Asp | His | Ser | Val | Thr<br>265 | Gly | Phe | Leu | Cys | Glu<br>270 |  |
| Pro | Asp | Pro | Val | His<br>275 | Phe | Ser | Glu | Ala | Ile<br>280 | Glu | Lys | Phe | Ile | Arg<br>285 |  |
| Glu | Pro | Ser | Leu | Lys<br>290 | Ala | Thr | Met | Gly | Leu<br>295 | Ala | Gly | Arg | Ala | Arg<br>300 |  |
| Val | Lys | Glu | Lys | Phe<br>305 | Ser | Pro | Glu | Ala | Phe<br>310 | Thr | Glu | Gln | Leu | Tyr<br>315 |  |
| Arg | Tyr | Val | Thr | Lys<br>320 | Leu | Leu | Val |     |            |     |     |     |     |            |  |

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<212> DNA
<213> Homo sapiens
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cttcgcgatc ttcgccgtta ccttcttctg ggcggttggt ggagccgtgc 100
tctacctcta tccggcttcc agacaagctg caggaattcc agggattact 150
ccaactgaag aaaaagatgg taatcttcca gatattgtga atagtggaag 200
tttgcatgag ttcttggtta atttgcatga gagatatggg cctgtggtct 250
ccttctggtt tggcaggcgc ctcgtgggta gtttgggcac tgttgatgta 300
ctgaagcagc atatcaatcc caataagaca tcggaccctt ttgaaaccat 350
gctgaaqtca ttattaaqgt atcaatctgq tgggtggcagt gtgagtga 400
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<210> 212
<211> 462
<212> PRT
<213> Homo sapiens
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  1          5          10          15
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|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Val | Gly | Ala | Val | Leu<br>20  | Tyr | Leu | Tyr | Pro | Ala<br>25  | Ser | Arg | Gln | Ala | Ala<br>30  |
| Gly | Ile | Pro | Gly | Ile<br>35  | Thr | Pro | Thr | Glu | Glu<br>40  | Lys | Asp | Gly | Asn | Leu<br>45  |
| Pro | Asp | Ile | Val | Asn<br>50  | Ser | Gly | Ser | Leu | His<br>55  | Glu | Phe | Leu | Val | Asn<br>60  |
| Leu | His | Glu | Arg | Tyr<br>65  | Gly | Pro | Val | Val | Ser<br>70  | Phe | Trp | Phe | Gly | Arg<br>75  |
| Arg | Leu | Val | Val | Ser<br>80  | Leu | Gly | Thr | Val | Asp<br>85  | Val | Leu | Lys | Gln | His<br>90  |
| Ile | Asn | Pro | Asn | Lys<br>95  | Thr | Ser | Asp | Pro | Phe<br>100 | Glu | Thr | Met | Leu | Lys<br>105 |
| Ser | Leu | Leu | Arg | Tyr<br>110 | Gln | Ser | Gly | Gly | Gly<br>115 | Ser | Val | Ser | Glu | Asn<br>120 |
| His | Met | Arg | Lys | Lys<br>125 | Leu | Tyr | Glu | Asn | Gly<br>130 | Val | Thr | Asp | Ser | Leu<br>135 |
| Lys | Ser | Asn | Phe | Ala<br>140 | Leu | Leu | Leu | Lys | Leu<br>145 | Ser | Glu | Glu | Leu | Leu<br>150 |
| Asp | Lys | Trp | Leu | Ser<br>155 | Tyr | Pro | Glu | Thr | Gln<br>160 | His | Val | Pro | Leu | Ser<br>165 |
| Gln | His | Met | Leu | Gly<br>170 | Phe | Ala | Met | Lys | Ser<br>175 | Val | Thr | Gln | Met | Val<br>180 |
| Met | Gly | Ser | Thr | Phe<br>185 | Glu | Asp | Asp | Gln | Glu<br>190 | Val | Ile | Arg | Phe | Gln<br>195 |
| Lys | Asn | His | Gly | Thr<br>200 | Val | Trp | Ser | Glu | Ile<br>205 | Gly | Lys | Gly | Phe | Leu<br>210 |
| Asp | Gly | Ser | Leu | Asp<br>215 | Lys | Asn | Met | Thr | Arg<br>220 | Lys | Lys | Gln | Tyr | Glu<br>225 |
| Asp | Ala | Leu | Met | Gln<br>230 | Leu | Glu | Ser | Val | Leu<br>235 | Arg | Asn | Ile | Ile | Lys<br>240 |
| Glu | Arg | Lys | Gly | Arg<br>245 | Asn | Phe | Ser | Gln | His<br>250 | Ile | Phe | Ile | Asp | Ser<br>255 |
| Leu | Val | Gln | Gly | Asn<br>260 | Leu | Asn | Asp | Gln | Gln<br>265 | Ile | Leu | Glu | Asp | Ser<br>270 |
| Met | Ile | Phe | Ser | Leu<br>275 | Ala | Ser | Cys | Ile | Ile<br>280 | Thr | Ala | Lys | Leu | Cys<br>285 |
| Thr | Trp | Ala | Ile | Cys<br>290 | Phe | Leu | Thr | Thr | Ser<br>295 | Glu | Glu | Val | Gln | Lys<br>300 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Lys | Leu | Tyr | Glu | Glu | Ile | Asn | Gln | Val | Phe | Gly | Asn | Gly | Pro | Val |
|     |     |     |     | 305 |     |     |     |     |     |     |     |     | 310 | 315 |
| Thr | Pro | Glu | Lys | Ile | Glu | Gln | Leu | Arg | Tyr | Cys | Gln | His | Val | Leu |
|     |     |     |     | 320 |     |     |     |     |     |     |     |     | 325 | 330 |
| Cys | Glu | Thr | Val | Arg | Thr | Ala | Lys | Leu | Thr | Pro | Val | Ser | Ala | Gln |
|     |     |     |     | 335 |     |     |     |     |     |     |     |     | 340 | 345 |
| Leu | Gln | Asp | Ile | Glu | Gly | Lys | Ile | Asp | Arg | Phe | Ile | Ile | Pro | Arg |
|     |     |     |     | 350 |     |     |     |     |     |     |     |     | 355 | 360 |
| Glu | Thr | Leu | Val | Leu | Tyr | Ala | Leu | Gly | Val | Val | Leu | Gln | Asp | Pro |
|     |     |     |     | 365 |     |     |     |     |     |     |     |     | 370 | 375 |
| Asn | Thr | Trp | Pro | Ser | Pro | His | Lys | Phe | Asp | Pro | Asp | Arg | Phe | Asp |
|     |     |     |     | 380 |     |     |     |     |     |     |     |     | 385 | 390 |
| Asp | Glu | Leu | Val | Met | Lys | Thr | Phe | Ser | Ser | Leu | Gly | Phe | Ser | Gly |
|     |     |     |     | 395 |     |     |     |     |     |     |     |     | 400 | 405 |
| Thr | Gln | Glu | Cys | Pro | Glu | Leu | Arg | Phe | Ala | Tyr | Met | Val | Thr | Thr |
|     |     |     |     | 410 |     |     |     |     |     |     |     |     | 415 | 420 |
| Val | Leu | Leu | Ser | Val | Leu | Val | Lys | Arg | Leu | His | Leu | Leu | Ser | Val |
|     |     |     |     | 425 |     |     |     |     |     |     |     |     | 430 | 435 |
| Glu | Gly | Gln | Val | Ile | Glu | Thr | Lys | Tyr | Glu | Leu | Val | Thr | Ser | Ser |
|     |     |     |     | 440 |     |     |     |     |     |     |     |     | 445 | 450 |
| Arg | Glu | Glu | Ala | Trp | Ile | Thr | Val | Ser | Lys | Arg | Tyr |     |     |     |
|     |     |     |     | 455 |     |     |     |     |     |     | 460 |     |     |     |

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 <212> DNA  
 <213> Homo sapiens

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 tcagggttg tgccctctcg ctctctgacg ctccctggcg atctggtggt 150  
 cgtcatcacc ttattctggt cccgggacag caacatacag gcctgcctgc 200  
 ctctcacgtt ccccccgag gagtatgaca agcaggacat tcagctggtg 250  
 gccgcgtct ctgtcacctt gggcctcttt gcagtggagc tggccggttt 300  
 cctctcagga gtctccatgt tcaacagcac ccagagcctc atctccattg 350  
 gggctcaact tagtgatcc gtggccctgt ccttcttcat attcgagcgt 400  
 tgggagtgc ctacgtattg gtacattttt gtcttctgca gtgcccttcc 450





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<210> 214
<211> 140
<212> PRT
<213> Homo sapiens
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<210> 215
<211> 697
<212> DNA
<213> Homo sapiens
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<400> 215  
tcccggaacc tgcgcacctg ccactatgtc ccgccgctct atgctgcttg 50



|             |            |             |            |            |     |
|-------------|------------|-------------|------------|------------|-----|
| cttggggctct | ccccagcctc | cttcgactcg  | gagcggctca | ggagacagaa | 100 |
| gacccggcct  | gctgcagccc | catagtgcc   | cggaacgagt | ggaaggccct | 150 |
| ggcatcagag  | tgcgcccagc | acctgagcct  | gcccttacgc | tatgtggttg | 200 |
| tatcgcacac  | ggcgggcagc | agctgcaaca  | ccccgcctc  | gtgccagcag | 250 |
| caggcccgga  | atgtgcagca | ctaccacatg  | aagacactgg | gctggtgcga | 300 |
| cgtgggctac  | aacttcctga | ttggagaaga  | cgggctcgta | tacgagggcc | 350 |
| gtggctggaa  | cttcacgggt | gcccactcag  | gtcacttatg | gaaccccatg | 400 |
| tccattggca  | tcagcttcat | gggcaactac  | atggatcggg | tgccacacc  | 450 |
| ccaggccatc  | cgggcagccc | agggctctact | ggcctgcggt | gtggctcagg | 500 |
| gagccctgag  | gtccaactat | gtgctcaaag  | gacaccggga | tgtgcagcgt | 550 |
| acactctctc  | caggcaacca | gctctaccac  | ctcatccaga | attggccaca | 600 |
| ctaccgctcc  | ccctgaggcc | ctgctgatcc  | gcaccccatc | cctccctcc  | 650 |
| catggccaaa  | aacccactg  | tctccttctc  | caataaagat | gtagctc    | 697 |

<210> 216

<211> 196

<212> PRT

<213> Homo sapiens

<400> 216

Met Ser Arg Arg Ser Met Leu Leu Ala Trp Ala Leu Pro Ser Leu  
1 5 10 15

Leu Arg Leu Gly Ala Ala Gln Glu Thr Glu Asp Pro Ala Cys Cys  
20 25 30

Ser Pro Ile Val Pro Arg Asn Glu Trp Lys Ala Leu Ala Ser Glu  
35 40 45

Cys Ala Gln His Leu Ser Leu Pro Leu Arg Tyr Val Val Val Ser  
50 55 60

His Thr Ala Gly Ser Ser Cys Asn Thr Pro Ala Ser Cys Gln Gln  
65 70 75

Gln Ala Arg Asn Val Gln His Tyr His Met Lys Thr Leu Gly Trp  
80 85 90

Cys Asp Val Gly Tyr Asn Phe Leu Ile Gly Glu Asp Gly Leu Val  
95 100 105

Tyr Glu Gly Arg Gly Trp Asn Phe Thr Gly Ala His Ser Gly His  
110 115 120



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Trp | Asn | Pro | Met | Ser | Ile | Gly | Ile | Ser | Phe | Met | Gly | Asn | Tyr |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Met | Asp | Arg | Val | Pro | Thr | Pro | Gln | Ala | Ile | Arg | Ala | Ala | Gln | Gly |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Leu | Leu | Ala | Cys | Gly | Val | Ala | Gln | Gly | Ala | Leu | Arg | Ser | Asn | Tyr |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Val | Leu | Lys | Gly | His | Arg | Asp | Val | Gln | Arg | Thr | Leu | Ser | Pro | Gly |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Asn | Gln | Leu | Tyr | His | Leu | Ile | Gln | Asn | Trp | Pro | His | Tyr | Arg | Ser |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |

Pro

<210> 217  
 <211> 1871  
 <212> DNA  
 <213> Homo sapiens

<400> 217  
 ctgggacccc gaaaagagaa ggggagagcg aggggacgag agcggaggag 50  
 gaagatgcaa ctgactcgct gctgcttcgt gttcctggtg cagggtagcc 100  
 tctatctggt catctgtggc caggatgatg gtcctcccgg ctgagaggac 150  
 cctgagcgtg atgaccacga gggccagccc cgccccggg tgcctcggaa 200  
 gcggggccac atctcaccta agtcccgccc catggccaat tccactctcc 250  
 tagggctgct ggccccgcct ggggaggctt ggggcattct tgggcagccc 300  
 cccaaccgcc cgaaccacag cccccaccc tcagccaagg tgaagaaaat 350  
 ctttggtggt ggcgacttct actccaacat caagacggtg gccctgaacc 400  
 tgctcgtcac agggaagatt gtggaccatg gcaatgggac cttcagcgtc 450  
 cacttccaac acaatgccac aggccaggga aacatctcca tcagcctcgt 500  
 gccccccagt aaagctgtag agttccacca ggaacagcag atcttcatcg 550  
 aagccaaggc ctccaaaatc ttcaactgcc ggatggagtg ggagaaggta 600  
 gaacggggcc gccggacctc gctttgcacc cacgaccag ccaagatctg 650  
 ctcccagac cacgctcaga gtcagccac ctggagctgc tcccagccct 700  
 tcaaagtcgt ctgtgtctac atgccttct acagcacgga ctatcggctg 750  
 gtccagaagg tgtgccaga ttacaactac catagtata cccctacta 800  
 cccatctggg tgaccggggg caggccacag aggccaggcc agggctggaa 850



|            |            |            |            |             |      |
|------------|------------|------------|------------|-------------|------|
| ggacaggcct | gcccatgcag | gagaccatct | ggacaccggg | cagggaaggg  | 900  |
| gttgggcctc | aggcagggag | gggggtggag | acgaggagat | gccaaagtggg | 950  |
| gccagggcca | agtctcaagt | ggcagagaaa | gggtcccaag | tgctgggtccc | 1000 |
| aacctgaagc | tgtggagtga | ctagatcaca | ggagcactgg | aggaggagtg  | 1050 |
| ggctctctgt | gcagcctcac | agggctttgc | cacggagcca | cagagagatg  | 1100 |
| ctgggtcccc | gaggcctgtg | ggcaggccga | tcagtgtggc | cccagatcaa  | 1150 |
| gtcatgggag | gaagctaagc | ccttggttct | tgccatcctg | aggaaagata  | 1200 |
| gcaacaggga | gggggagatt | tcatcagtgt | ggacagcctg | tcaacttagg  | 1250 |
| atggatggct | gagagggctt | cctaggagcc | agtcagcagg | gtgggggtggg | 1300 |
| gccagaggag | ctctccagcc | ctgcctagtg | ggcgccctga | gccccttgct  | 1350 |
| gtgtgctgag | catggcatga | ggctgaagtg | gcaaccctgg | ggtctttgat  | 1400 |
| gtcttgacag | attgaccatc | tgtctccagc | caggccaccc | ctttccaaaa  | 1450 |
| ttccctcttc | tgccagtact | ccccctgtac | caccattgct | tgatggcaca  | 1500 |
| cccatcctta | agctaagaca | ggacgattgt | ggtcctccca | cactaaggcc  | 1550 |
| acagcccata | cgcgtgctgt | gtgtccctct | tccaccccaa | ccctgtctgg  | 1600 |
| ctcctctggg | agcatccatg | tcccggagag | gggtccctca | acagtcagcc  | 1650 |
| tcacctgtca | gaccgggggt | ctcccggatc | tggatggcgc | cgccctctca  | 1700 |
| gcagcgggca | cgggtggggc | ggggccgggc | cgcagagcat | gtgctggatc  | 1750 |
| tgttctgtgt | gtctgtctgt | gggtgggggg | aggggagggg | agtcttgtga  | 1800 |
| aaccgctgat | tgctgacttt | tgtgtgaaga | atcgtgttct | tggagcagga  | 1850 |
| aataaaqctt | gccccggggc | a          | 1871       |             |      |

<210> 218

<211> 252

<212> PRT

<213> Homo sapiens

<400> 218

Met Gln Leu Thr Arg Cys Cys Phe Val Phe Leu Val Gln Gly Ser  
1 5 10 15

Leu Tyr Leu Val Ile Cys Gly Gln Asp Asp Gly Pro Pro Gly Ser  
20 25 30

Glu Asp Pro Glu Arg Asp Asp His Glu Gly Gln Pro Arg Pro Arg  
35 40 45



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Pro | Arg | Lys | Arg | Gly | His | Ile | Ser | Pro | Lys | Ser | Arg | Pro | Met |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Asn | Ser | Thr | Leu | Leu | Gly | Leu | Leu | Ala | Pro | Pro | Gly | Glu | Ala |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Trp | Gly | Ile | Leu | Gly | Gln | Pro | Pro | Asn | Arg | Pro | Asn | His | Ser | Pro |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Pro | Pro | Ser | Ala | Lys | Val | Lys | Lys | Ile | Phe | Gly | Trp | Gly | Asp | Phe |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Tyr | Ser | Asn | Ile | Lys | Thr | Val | Ala | Leu | Asn | Leu | Leu | Val | Thr | Gly |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Lys | Ile | Val | Asp | His | Gly | Asn | Gly | Thr | Phe | Ser | Val | His | Phe | Gln |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| His | Asn | Ala | Thr | Gly | Gln | Gly | Asn | Ile | Ser | Ile | Ser | Leu | Val | Pro |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Pro | Ser | Lys | Ala | Val | Glu | Phe | His | Gln | Glu | Gln | Gln | Ile | Phe | Ile |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Glu | Ala | Lys | Ala | Ser | Lys | Ile | Phe | Asn | Cys | Arg | Met | Glu | Trp | Glu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Lys | Val | Glu | Arg | Gly | Arg | Arg | Thr | Ser | Leu | Cys | Thr | His | Asp | Pro |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ala | Lys | Ile | Cys | Ser | Arg | Asp | His | Ala | Gln | Ser | Ser | Ala | Thr | Trp |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ser | Cys | Ser | Gln | Pro | Phe | Lys | Val | Val | Cys | Val | Tyr | Ile | Ala | Phe |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Tyr | Ser | Thr | Asp | Tyr | Arg | Leu | Val | Gln | Lys | Val | Cys | Pro | Asp | Tyr |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Asn | Tyr | His | Ser | Asp | Thr | Pro | Tyr | Tyr | Pro | Ser | Gly |     |     |     |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     |     |

<210> 219  
 <211> 2065  
 <212> DNA  
 <213> Homo sapiens

<400> 219  
 gtgaatgtga gggtttgatg actttcagat gtctaggaac cagagtgggt 50  
 gcagggggccc caggcagggc tgattcttgg gcggaggaga gtagggtaaa 100  
 gggttctgca tgagctcctt aaaggacaaa ggtaacagag ccagcgagag 150  
 agctcgaggg gagactttga cttcaagcca cagaattggg ggaagtgtgc 200



|             |             |             |             |             |      |
|-------------|-------------|-------------|-------------|-------------|------|
| gcgccgccgc  | cgccgtcgtc  | cctgcagcgc  | tgtcgacctc  | gccgctagca  | 250  |
| tcttccccgag | caccggggatc | ccgggggtagg | aggcgacgcg  | ggcgagcacc  | 300  |
| agcgccagcc  | ggctgcggtc  | gcccacacgg  | ctcaccatgg  | gctccggggcg | 350  |
| ccggggcgctg | tccgcggtgc  | cggccgtgct  | gctggctctc  | acgctgccgg  | 400  |
| ggctgcccgt  | ctgggcacag  | aacgacacgg  | agcccatcgt  | gctggagggc  | 450  |
| aagtgtctgg  | tgggtgtgca  | ctcgaacccg  | gccacggact  | ccaagggctc  | 500  |
| ctcttctctc  | ccgctgggga  | tatcgggtccg | ggcggccaac  | tccaaggtcg  | 550  |
| ccttctcggc  | ggtgcggagc  | accaaccacg  | agccatccga  | gatgagcaac  | 600  |
| aagacgcgca  | tcatttactt  | cgatcagatc  | ctgggtgaatg | tgggtaattt  | 650  |
| tttcacattg  | gagtctgtct  | ttgtagcacc  | aagaaaagga  | atttacagtt  | 700  |
| tcagttttca  | cgtgattaa   | gtctaccaga  | gccaaactat  | ccagggttaac | 750  |
| ttgatgttaa  | atggaaaacc  | agtaatatct  | gcctttgcgg  | gggacaaaga  | 800  |
| tgttactcgt  | gaagctgcca  | cgaatggtgt  | cctgctctac  | ctagataaag  | 850  |
| aggataaggt  | ttacctaaaa  | ctggagaaa   | gtaatttggt  | tggaggctgg  | 900  |
| cagtattcca  | cgttttctgg  | ctttctggtg  | ttccccctat  | aggattcaat  | 950  |
| ttctccatga  | tgttcatcca  | ggtgagggat  | gaccactcc   | tgagttattg  | 1000 |
| gaagatcatt  | ttttcatcat  | tggattgatg  | tcttttattg  | gtttctcatg  | 1050 |
| ggtggatatg  | gattctaagg  | attctagcct  | gtctgaacca  | atacaaaatt  | 1100 |
| tcacagatta  | tttgtgtgtg  | tctgtttcag  | tatatattgga | ttgggactct  | 1150 |
| aagcagataa  | tacctatgct  | taaatgtaac  | agtcaaaagc  | tgtctgcaag  | 1200 |
| acttattctg  | aatttcattt  | cctgggatta  | ctgaattagt  | tacagatgtg  | 1250 |
| gaattttatt  | tgtttagttt  | taaaagactg  | gcaaccaggt  | ctaaggatta  | 1300 |
| gaaaactcta  | aagtctgac   | ttcaatcaac  | ggttagtgtg  | atactgccaa  | 1350 |
| agaactgtat  | actgtgttaa  | tatattgatt  | atatttgttt  | ttattccttt  | 1400 |
| ggaattagtt  | tgtttggttc  | ttgtaaaaaa  | cttggtttt   | ttttttcagt  | 1450 |
| aactggtatt  | atgttttctc  | ttaaaaataag | gtaatgaatg  | gcttgcccac  | 1500 |
| aaatttacct  | tgactacgat  | atcatcgaca  | tgacttctct  | caaaaaaaaa  | 1550 |
| gaatgcttca  | tagttgtatt  | ttaattgtat  | atgtgaaaga  | gtcatatttt  | 1600 |
| ccaagttata  | ttttctaaga  | agaagaatag  | atcataaatc  | tgacaaggaa  | 1650 |



aaagttgctt acccaaaatc taagtgtcga atccctgagc ctcagcaaaa 1700  
 cagctccccct ccgaggggaaa tcttatactt tattgtcctaa ctttaattaa 1750  
 aatgattgat aataaccact ttattaaaaa cctaagggtt tttttttttc 1800  
 cgtagacatg accactttat taactggtgg tgggatgctg ttgtttctaa 1850  
 ttatacctat ttttcaaggc ttctgttgta tttgaagtat catctggttt 1900  
 tgccttaact ctttaaattg tatatattta tctgttttagc taatattaaa 1950  
 ttcaaataatc ccatatctaa atttagtgca atatcttgtc ttttgtatag 2000  
 gtcatatgaa ttcataaaat tatttatgtc tgttatagaa taaagattaa 2050  
 tatatgttaa aaaaa 2065

<210> 220  
 <211> 201  
 <212> PRT  
 <213> Homo sapiens

<400> 220  
 Met Gly Ser Gly Arg Arg Ala Leu Ser Ala Val Pro Ala Val Leu  
 1 5 10 15  
 Leu Val Leu Thr Leu Pro Gly Leu Pro Val Trp Ala Gln Asn Asp  
 20 25 30  
 Thr Glu Pro Ile Val Leu Glu Gly Lys Cys Leu Val Val Cys Asp  
 35 40 45  
 Ser Asn Pro Ala Thr Asp Ser Lys Gly Ser Ser Ser Ser Pro Leu  
 50 55 60  
 Gly Ile Ser Val Arg Ala Ala Asn Ser Lys Val Ala Phe Ser Ala  
 65 70 75  
 Val Arg Ser Thr Asn His Glu Pro Ser Glu Met Ser Asn Lys Thr  
 80 85 90  
 Arg Ile Ile Tyr Phe Asp Gln Ile Leu Val Asn Val Gly Asn Phe  
 95 100 105  
 Phe Thr Leu Glu Ser Val Phe Val Ala Pro Arg Lys Gly Ile Tyr  
 110 115 120  
 Ser Phe Ser Phe His Val Ile Lys Val Tyr Gln Ser Gln Thr Ile  
 125 130 135  
 Gln Val Asn Leu Met Leu Asn Gly Lys Pro Val Ile Ser Ala Phe  
 140 145 150  
 Ala Gly Asp Lys Asp Val Thr Arg Glu Ala Ala Thr Asn Gly Val  
 155 160 165



Leu Leu Tyr Leu Asp Lys Glu Asp Lys Val Tyr Leu Lys Leu Glu  
                           170                          175                          180

Lys Gly Asn Leu Val Gly Gly Trp Gln Tyr Ser Thr Phe Ser Gly  
                           185                          190                          195

Phe Leu Val Phe Pro Leu  
                           200

<210> 221  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 221  
       acggctcacc atgggctccg 20

<210> 222  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 222  
       aggaagagga gcccttggag tccg 24

<210> 223  
 <211> 40  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 223  
       cgtgctggag ggcaagtgtc tgggtggtgtg cgactcgaac 40

<210> 224  
 <211> 902  
 <212> DNA  
 <213> Homo sapiens

<400> 224  
       cggtggccat gactgcggcc gtgttcttcg gctgcgcctt cattgccttc 50  
       gggcctgcgc tcgcccttta tgtcttcacc atcgccatcg agccgttgcg 100  
       tatcatcttc ctcatgcgcg gagctttctt ctggttggtg tctctactga 150  
       tttcgtccct tgtttggttc atggcaagag tcattattga caacaaagat 200



ggaccaacac agaaatatct gctgatcttt ggagcgtttg tctctgtcta 250  
 tatccaagaa atgttccgat ttgcatatta taaactctta aaaaaagcca 300  
 gtgaagggtt gaagagtata aaccacaggtg agacagcacc ctctatgcga 350  
 ctgctggcct atgtttctgg cttgggcttt ggaatcatga gtggagtatt 400  
 ttcttttgta aataccctat ctgactcctt ggggccaggc acagtgggca 450  
 ttcatggaga ttctcctcaa ttcttccttt attcagcttt catgacgctg 500  
 gtcattatct tgctgcatgt attctggggc attgtatttt ttgatggctg 550  
 tgagaagaaa aagtggggca tcctccttat cgttctcctg acccacctgc 600  
 tgggtgcagc ccagaccttc ataagttctt attatggaat aaacctggcg 650  
 tcagcattta taatcctggt gctcatgggc acctgggcat tcttagctgc 700  
 gggaggcagc tgccgaagcc tgaaactctg cctgctctgc caagacaaga 750  
 actttcttct ttacaaccag cgctccagat aacctcaggg aaccagcact 800  
 tcccaaaccg cagactacat ctttagagga agcacaactg tgcctttttc 850  
 tgaaaatccc tttttctggt ggaattgaga aagaaataaa actatgcaga 900  
 ta 902

<210> 225

<211> 257

<212> PRT

<213> Homo sapiens

<400> 225

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Thr | Ala | Ala | Val | Phe | Phe | Gly | Cys | Ala | Phe | Ile | Ala | Phe | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Pro | Ala | Leu | Ala | Leu | Tyr | Val | Phe | Thr | Ile | Ala | Ile | Glu | Pro | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Arg | Ile | Ile | Phe | Leu | Ile | Ala | Gly | Ala | Phe | Phe | Trp | Leu | Val | Ser |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Leu | Ile | Ser | Ser | Leu | Val | Trp | Phe | Met | Ala | Arg | Val | Ile | Ile |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Asp | Asn | Lys | Asp | Gly | Pro | Thr | Gln | Lys | Tyr | Leu | Leu | Ile | Phe | Gly |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ala | Phe | Val | Ser | Val | Tyr | Ile | Gln | Glu | Met | Phe | Arg | Phe | Ala | Tyr |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Tyr | Lys | Leu | Leu | Lys | Lys | Ala | Ser | Glu | Gly | Leu | Lys | Ser | Ile | Asn |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |



|                     |                 |                     |     |
|---------------------|-----------------|---------------------|-----|
| Pro Gly Glu Thr Ala | Pro Ser Met Arg | Leu Leu Ala Tyr Val | Ser |
| 110                 | 115             | 120                 |     |
| Gly Leu Gly Phe Gly | Ile Met Ser Gly | Val Phe Ser Phe Val | Asn |
| 125                 | 130             | 135                 |     |
| Thr Leu Ser Asp Ser | Leu Gly Pro Gly | Thr Val Gly Ile His | Gly |
| 140                 | 145             | 150                 |     |
| Asp Ser Pro Gln Phe | Phe Leu Tyr Ser | Ala Phe Met Thr Leu | Val |
| 155                 | 160             | 165                 |     |
| Ile Ile Leu Leu His | Val Phe Trp Gly | Ile Val Phe Phe Asp | Gly |
| 170                 | 175             | 180                 |     |
| Cys Glu Lys Lys Lys | Trp Gly Ile Leu | Leu Ile Val Leu Leu | Thr |
| 185                 | 190             | 195                 |     |
| His Leu Leu Val Ser | Ala Gln Thr Phe | Ile Ser Ser Tyr Tyr | Gly |
| 200                 | 205             | 210                 |     |
| Ile Asn Leu Ala Ser | Ala Phe Ile Ile | Leu Val Leu Met Gly | Thr |
| 215                 | 220             | 225                 |     |
| Trp Ala Phe Leu Ala | Ala Gly Gly Ser | Cys Arg Ser Leu Lys | Leu |
| 230                 | 235             | 240                 |     |
| Cys Leu Leu Cys Gln | Asp Lys Asn Phe | Leu Leu Tyr Asn Gln | Arg |
| 245                 | 250             | 255                 |     |

Ser Arg

<210> 226  
 <211> 3939  
 <212> DNA  
 <213> Homo sapiens

<400> 226  
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 atgttcgctc tgggcttgcc cttcttggtg ctcttggtgg cctcggtcga 100  
 gagccatctg ggggttcttg ggccaagaa cgtctcgag aaagacgccg 150  
 agtttgagcg cacctacgtg gacgaggtca acagcgagct ggtcaacatc 200  
 tacaccttca accatactgt gacccgaac aggacagagg gcgtgcgtgt 250  
 gtctgtgaac gtcctgaaca agcagaagg ggcgccgttg ctgtttgtgg 300  
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<212> PRT

<213> Homo sapiens

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Glu Leu Val Asn Ile Tyr Thr Phe Asn His Thr Val Thr Arg Asn  
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Arg Thr Glu Gly Val Arg Val Ser Val Asn Val Leu Asn Lys Gln  
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Lys Gly Ala Pro Leu Leu Phe Val Val Arg Gln Lys Glu Ala Val  
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Val Ser Phe Gln Val Pro Leu Ile Leu Arg Gly Met Phe Gln Arg  
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Lys Tyr Leu Tyr Gln Lys Val Glu Arg Thr Leu Cys Gln Pro Pro  
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Thr Lys Asn Glu Ser Glu Ile Gln Phe Phe Tyr Val Asp Val Ser

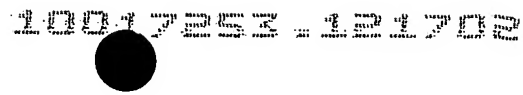


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| Met Asp Asp Phe | Val Leu Arg Thr Gly | Glu Gln Phe Ser Phe Asn |     |     |     |
|                 | 155                 | 160                     |     | 165 |     |
| Thr Thr Ala Ala | Gln Pro Gln Tyr Phe | Lys Tyr Glu Phe Pro Glu |     |     |     |
|                 | 170                 | 175                     |     | 180 |     |
| Gly Val Asp Ser | Val Ile Val Lys Val | Thr Ser Asn Lys Ala Phe |     |     |     |
|                 | 185                 | 190                     |     | 195 |     |
| Pro Cys Ser Val | Ile Ser Ile Gln Asp | Val Leu Cys Pro Val Tyr |     |     |     |
|                 | 200                 | 205                     |     | 210 |     |
| Asp Leu Asp Asn | Asn Val Ala Phe Ile | Gly Met Tyr Gln Thr Met |     |     |     |
|                 | 215                 | 220                     |     | 225 |     |
| Thr Lys Lys Ala | Ala Ile Thr Val Gln | Arg Lys Asp Phe Pro Ser |     |     |     |
|                 | 230                 | 235                     |     | 240 |     |
| Asn Ser Phe Tyr | Val Val Val Val Val | Lys Thr Glu Asp Gln Ala |     |     |     |
|                 | 245                 | 250                     |     | 255 |     |
| Cys Gly Gly Ser | Leu Pro Phe Tyr Pro | Phe Ala Glu Asp Glu Pro |     |     |     |
|                 | 260                 | 265                     |     | 270 |     |
| Val Asp Gln Gly | His Arg Gln Lys Thr | Leu Ser Val Leu Val Ser |     |     |     |
|                 | 275                 | 280                     |     | 285 |     |
| Gln Ala Val Thr | Ser Glu Ala Tyr Val | Ser Gly Met Leu Phe Cys |     |     |     |
|                 | 290                 | 295                     |     | 300 |     |
| Leu Gly Ile Phe | Leu Ser Phe Tyr Leu | Leu Thr Val Leu Leu Ala |     |     |     |
|                 | 305                 | 310                     |     | 315 |     |
| Cys Trp Glu Asn | Trp Arg Gln Lys Lys | Lys Thr Leu Leu Val Ala |     |     |     |
|                 | 320                 | 325                     |     | 330 |     |
| Ile Asp Arg Ala | Cys Pro Glu Ser Gly | His Pro Arg Val Leu Ala |     |     |     |
|                 | 335                 | 340                     |     | 345 |     |
| Asp Ser Phe Pro | Gly Ser Ser Pro Tyr | Glu Gly Tyr Asn Tyr Gly |     |     |     |
|                 | 350                 | 355                     |     | 360 |     |
| Ser Phe Glu Asn | Val Ser Gly Ser Thr | Asp Gly Leu Val Asp Ser |     |     |     |
|                 | 365                 | 370                     |     | 375 |     |
| Ala Gly Thr Gly | Asp Leu Ser Tyr Gly | Tyr Gln Gly Arg Ser Phe |     |     |     |
|                 | 380                 | 385                     |     | 390 |     |
| Glu Pro Val Gly | Thr Arg Pro Arg Val | Asp Ser Met Ser Ser Val |     |     |     |
|                 | 395                 | 400                     |     | 405 |     |
| Glu Glu Asp Asp | Tyr Asp Thr Leu Thr | Asp Ile Asp Ser Asp Lys |     |     |     |



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| Arg Lys Asp Lys Arg Val Leu Arg Lys | Lys Tyr Gln Ile Tyr | Phe |
| 440                                 | 445                 | 450 |
| Trp Asn Ile Ala Thr Ile Ala Val Phe | Tyr Ala Leu Pro Val | Val |
| 455                                 | 460                 | 465 |
| Gln Leu Val Ile Thr Tyr Gln Thr Val | Val Asn Val Thr Gly | Asn |
| 470                                 | 475                 | 480 |
| Gln Asp Ile Cys Tyr Tyr Asn Phe Leu | Cys Ala His Pro Leu | Gly |
| 485                                 | 490                 | 495 |
| Asn Leu Ser Ala Phe Asn Asn Ile Leu | Ser Asn Leu Gly Tyr | Ile |
| 500                                 | 505                 | 510 |
| Leu Leu Gly Leu Leu Phe Leu Leu Ile | Ile Leu Gln Arg Glu | Ile |
| 515                                 | 520                 | 525 |
| Asn His Asn Arg Ala Leu Leu Arg Asn | Asp Leu Cys Ala Leu | Glu |
| 530                                 | 535                 | 540 |
| Cys Gly Ile Pro Lys His Phe Gly Leu | Phe Tyr Ala Met Gly | Thr |
| 545                                 | 550                 | 555 |
| Ala Leu Met Met Glu Gly Leu Leu Ser | Ala Cys Tyr His Val | Cys |
| 560                                 | 565                 | 570 |
| Pro Asn Tyr Thr Asn Phe Gln Phe Asp | Thr Ser Phe Met Tyr | Met |
| 575                                 | 580                 | 585 |
| Ile Ala Gly Leu Cys Met Leu Lys Leu | Tyr Gln Lys Arg His | Pro |
| 590                                 | 595                 | 600 |
| Asp Ile Asn Ala Ser Ala Tyr Ser Ala | Tyr Ala Cys Leu Ala | Ile |
| 605                                 | 610                 | 615 |
| Val Ile Phe Phe Ser Val Leu Gly Val | Val Phe Gly Lys Gly | Asn |
| 620                                 | 625                 | 630 |
| Thr Ala Phe Trp Ile Val Phe Ser Ile | Ile His Ile Ile Ala | Thr |
| 635                                 | 640                 | 645 |
| Leu Leu Leu Ser Thr Gln Leu Tyr Tyr | Met Gly Arg Trp Lys | Leu |
| 650                                 | 655                 | 660 |
| Asp Ser Gly Ile Phe Arg Arg Ile Leu | His Val Leu Tyr Thr | Asp |
| 665                                 | 670                 | 675 |
| Cys Ile Arg Gln Cys Ser Gly Pro Leu | Tyr Val Asp Arg Met | Val |
| 680                                 | 685                 | 690 |
| Leu Leu Val Met Gly Asn Val Ile Asn | Trp Ser Leu Ala Ala | Tyr |





| 695                                 | 700                     | 705 |
|-------------------------------------|-------------------------|-----|
| Gly Leu Ile Met Arg Pro Asn Asp Phe | Ala Ser Tyr Leu Leu     | Ala |
| 710                                 | 715                     | 720 |
| Ile Gly Ile Cys Asn Leu Leu Leu Tyr | Phe Ala Phe Tyr Ile     | Ile |
| 725                                 | 730                     | 735 |
| Met Lys Leu Arg Ser Gly Glu Arg Ile | Lys Leu Ile Pro Leu Leu |     |
| 740                                 | 745                     | 750 |
| Cys Ile Val Cys Thr Ser Val Val Trp | Gly Phe Ala Leu Phe     | Phe |
| 755                                 | 760                     | 765 |
| Phe Phe Gln Gly Leu Ser Thr Trp Gln | Lys Thr Pro Ala Glu Ser |     |
| 770                                 | 775                     | 780 |
| Arg Glu His Asn Arg Asp Cys Ile Leu | Leu Asp Phe Phe Asp Asp |     |
| 785                                 | 790                     | 795 |
| His Asp Ile Trp His Phe Leu Ser Ser | Ile Ala Met Phe Gly Ser |     |
| 800                                 | 805                     | 810 |
| Phe Leu Val Leu Leu Thr Leu Asp Asp | Asp Leu Asp Thr Val Gln |     |
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<212> PRT

<213> Homo sapiens

<400> 229

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| Met | Val | Pro | Ala | Trp | Leu | Trp | Leu | Leu | Cys | Val | Ser | Val | Pro | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ala | Leu | Pro | Lys | Ala | Gln | Pro | Ala | Glu | Leu | Ser | Val | Glu | Val | Pro |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     |     | 30  |
| Glu | Asn | Tyr | Gly | Gly | Asn | Phe | Pro | Leu | Tyr | Leu | Thr | Lys | Leu | Pro |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     |     | 45  |
| Leu | Pro | Arg | Glu | Gly | Ala | Glu | Gly | Gln | Ile | Val | Leu | Ser | Gly | Asp |
|     |     |     | 50  |     |     |     |     | 55  |     |     |     |     |     | 60  |
| Ser | Gly | Lys | Ala | Thr | Glu | Gly | Pro | Phe | Ala | Met | Asp | Pro | Asp | Ser |
|     |     |     | 65  |     |     |     |     | 70  |     |     |     |     |     | 75  |
| Gly | Phe | Leu | Leu | Val | Thr | Arg | Ala | Leu | Asp | Arg | Glu | Glu | Gln | Ala |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 80         |     |     |     |     | 85         |     |     |     |     | 90         |
| Glu | Tyr | Gln | Leu | Gln<br>95  | Val | Thr | Leu | Glu | Met<br>100 | Gln | Asp | Gly | His | Val<br>105 |
| Leu | Trp | Gly | Pro | Gln<br>110 | Pro | Val | Leu | Val | His<br>115 | Val | Lys | Asp | Glu | Asn<br>120 |
| Asp | Gln | Val | Pro | His<br>125 | Phe | Ser | Gln | Ala | Ile<br>130 | Tyr | Arg | Ala | Arg | Leu<br>135 |
| Ser | Arg | Gly | Thr | Arg<br>140 | Pro | Gly | Ile | Pro | Phe<br>145 | Leu | Phe | Leu | Glu | Ala<br>150 |
| Ser | Asp | Arg | Asp | Glu<br>155 | Pro | Gly | Thr | Ala | Asn<br>160 | Ser | Asp | Leu | Arg | Phe<br>165 |
| His | Ile | Leu | Ser | Gln<br>170 | Ala | Pro | Ala | Gln | Pro<br>175 | Ser | Pro | Asp | Met | Phe<br>180 |
| Gln | Leu | Glu | Pro | Arg<br>185 | Leu | Gly | Ala | Leu | Ala<br>190 | Leu | Ser | Pro | Lys | Gly<br>195 |
| Ser | Thr | Ser | Leu | Asp<br>200 | His | Ala | Leu | Glu | Arg<br>205 | Thr | Tyr | Gln | Leu | Leu<br>210 |
| Val | Gln | Val | Lys | Asp<br>215 | Met | Gly | Asp | Gln | Ala<br>220 | Ser | Gly | His | Gln | Ala<br>225 |
| Thr | Ala | Thr | Val | Glu<br>230 | Val | Ser | Ile | Ile | Glu<br>235 | Ser | Thr | Trp | Val | Ser<br>240 |
| Leu | Glu | Pro | Ile | His<br>245 | Leu | Ala | Glu | Asn | Leu<br>250 | Lys | Val | Leu | Tyr | Pro<br>255 |
| His | His | Met | Ala | Gln<br>260 | Val | His | Trp | Ser | Gly<br>265 | Gly | Asp | Val | His | Tyr<br>270 |
| His | Leu | Glu | Ser | His<br>275 | Pro | Pro | Gly | Pro | Phe<br>280 | Glu | Val | Asn | Ala | Glu<br>285 |
| Gly | Asn | Leu | Tyr | Val<br>290 | Thr | Arg | Glu | Leu | Asp<br>295 | Arg | Glu | Ala | Gln | Ala<br>300 |
| Glu | Tyr | Leu | Leu | Gln<br>305 | Val | Arg | Ala | Gln | Asn<br>310 | Ser | His | Gly | Glu | Asp<br>315 |
| Tyr | Ala | Ala | Pro | Leu<br>320 | Glu | Leu | His | Val | Leu<br>325 | Val | Met | Asp | Glu | Asn<br>330 |
| Asp | Asn | Val | Pro | Ile<br>335 | Cys | Pro | Pro | Arg | Asp<br>340 | Pro | Thr | Val | Ser | Ile<br>345 |
| Pro | Glu | Leu | Ser | Pro<br>350 | Pro | Gly | Thr | Glu | Val<br>355 | Thr | Arg | Leu | Ser | Ala<br>360 |
| Glu | Asp | Ala | Asp | Ala        | Pro | Gly | Ser | Pro | Asn        | Ser | His | Val | Val | Tyr        |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 365        |     |     |     |     | 370        |     |     |     |     | 375        |
| Gln | Leu | Leu | Ser | Pro<br>380 | Glu | Pro | Glu | Asp | Gly<br>385 | Val | Glu | Gly | Arg | Ala<br>390 |
| Phe | Gln | Val | Asp | Pro<br>395 | Thr | Ser | Gly | Ser | Val<br>400 | Thr | Leu | Gly | Val | Leu<br>405 |
| Pro | Leu | Arg | Ala | Gly<br>410 | Gln | Asn | Ile | Leu | Leu<br>415 | Leu | Val | Leu | Ala | Met<br>420 |
| Asp | Leu | Ala | Gly | Ala<br>425 | Glu | Gly | Gly | Phe | Ser<br>430 | Ser | Thr | Cys | Glu | Val<br>435 |
| Glu | Val | Ala | Val | Thr<br>440 | Asp | Ile | Asn | Asp | His<br>445 | Ala | Pro | Glu | Phe | Ile<br>450 |
| Thr | Ser | Gln | Ile | Gly<br>455 | Pro | Ile | Ser | Leu | Pro<br>460 | Glu | Asp | Val | Glu | Pro<br>465 |
| Gly | Thr | Leu | Val | Ala<br>470 | Met | Leu | Thr | Ala | Ile<br>475 | Asp | Ala | Asp | Leu | Glu<br>480 |
| Pro | Ala | Phe | Arg | Leu<br>485 | Met | Asp | Phe | Ala | Ile<br>490 | Glu | Arg | Gly | Asp | Thr<br>495 |
| Glu | Gly | Thr | Phe | Gly<br>500 | Leu | Asp | Trp | Glu | Pro<br>505 | Asp | Ser | Gly | His | Val<br>510 |
| Arg | Leu | Arg | Leu | Cys<br>515 | Lys | Asn | Leu | Ser | Tyr<br>520 | Glu | Ala | Ala | Pro | Ser<br>525 |
| His | Glu | Val | Val | Val<br>530 | Val | Val | Gln | Ser | Val<br>535 | Ala | Lys | Leu | Val | Gly<br>540 |
| Pro | Gly | Pro | Gly | Pro<br>545 | Gly | Ala | Thr | Ala | Thr<br>550 | Val | Thr | Val | Leu | Val<br>555 |
| Glu | Arg | Val | Met | Pro<br>560 | Pro | Pro | Lys | Leu | Asp<br>565 | Gln | Glu | Ser | Tyr | Glu<br>570 |
| Ala | Ser | Val | Pro | Ile<br>575 | Ser | Ala | Pro | Ala | Gly<br>580 | Ser | Phe | Leu | Leu | Thr<br>585 |
| Ile | Gln | Pro | Ser | Asp<br>590 | Pro | Ile | Ser | Arg | Thr<br>595 | Leu | Arg | Phe | Ser | Leu<br>600 |
| Val | Asn | Asp | Ser | Glu<br>605 | Gly | Trp | Leu | Cys | Ile<br>610 | Glu | Lys | Phe | Ser | Gly<br>615 |
| Glu | Val | His | Thr | Ala<br>620 | Gln | Ser | Leu | Gln | Gly<br>625 | Ala | Gln | Pro | Gly | Asp<br>630 |
| Thr | Tyr | Thr | Val | Leu<br>635 | Val | Glu | Ala | Gln | Asp<br>640 | Thr | Ala | Leu | Thr | Leu<br>645 |
| Ala | Pro | Val | Pro | Ser        | Gln | Tyr | Leu | Cys | Thr        | Pro | Arg | Gln | Asp | His        |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|-----|
|     |     |     |     |     | 650 |     |     |     |     |     | 655 |     |     |     |  |  | 660 |
| Gly | Leu | Ile | Val | Ser | Gly | Pro | Ser | Lys | Asp | Pro | Asp | Leu | Ala | Ser |  |  |     |
|     |     |     |     | 665 |     |     |     |     | 670 |     |     |     |     | 675 |  |  |     |
| Gly | His | Gly | Pro | Tyr | Ser | Phe | Thr | Leu | Gly | Pro | Asn | Pro | Thr | Val |  |  |     |
|     |     |     |     | 680 |     |     |     |     | 685 |     |     |     |     | 690 |  |  |     |
| Gln | Arg | Asp | Trp | Arg | Leu | Gln | Thr | Leu | Asn | Gly | Ser | His | Ala | Tyr |  |  |     |
|     |     |     |     | 695 |     |     |     |     | 700 |     |     |     |     | 705 |  |  |     |
| Leu | Thr | Leu | Ala | Leu | His | Trp | Val | Glu | Pro | Arg | Glu | His | Ile | Ile |  |  |     |
|     |     |     |     | 710 |     |     |     |     | 715 |     |     |     |     | 720 |  |  |     |
| Pro | Val | Val | Val | Ser | His | Asn | Ala | Gln | Met | Trp | Gln | Leu | Leu | Val |  |  |     |
|     |     |     |     | 725 |     |     |     |     | 730 |     |     |     |     | 735 |  |  |     |
| Arg | Val | Ile | Val | Cys | Arg | Cys | Asn | Val | Glu | Gly | Gln | Cys | Met | Arg |  |  |     |
|     |     |     |     | 740 |     |     |     |     | 745 |     |     |     |     | 750 |  |  |     |
| Lys | Val | Gly | Arg | Met | Lys | Gly | Met | Pro | Thr | Lys | Leu | Ser | Ala | Val |  |  |     |
|     |     |     |     | 755 |     |     |     |     | 760 |     |     |     |     | 765 |  |  |     |
| Gly | Ile | Leu | Val | Gly | Thr | Leu | Val | Ala | Ile | Gly | Ile | Phe | Leu | Ile |  |  |     |
|     |     |     |     | 770 |     |     |     |     | 775 |     |     |     |     | 780 |  |  |     |
| Leu | Ile | Phe | Thr | His | Trp | Thr | Met | Ser | Arg | Lys | Lys | Asp | Pro | Asp |  |  |     |
|     |     |     |     | 785 |     |     |     |     | 790 |     |     |     |     | 795 |  |  |     |
| Gln | Pro | Ala | Asp | Ser | Val | Pro | Leu | Lys | Ala | Thr | Val |     |     |     |  |  |     |
|     |     |     |     | 800 |     |     |     |     | 805 |     |     |     |     |     |  |  |     |

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<210> 230
<211> 50
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

<400> 230  
cgccttaccg cgcagcccga agattcacta tgggtgaaaat cgccttcaat 50

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<210> 231
<211> 24
<212> DNA
<213> Artificial Sequence
```

<220>  
<223> Synthetic oligonucleotide probe

```
<400> 231
cctgagctgt aaccccactc cagg 24
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|       |     |
|-------|-----|
| <210> | 232 |
| <211> | 23  |
| <212> | DNA |



|             |            |            |            |            |      |
|-------------|------------|------------|------------|------------|------|
| ccgggggacat | gaggtggata | ctgttcattg | gggcccttat | tgggtccagc | 50   |
| atctgtggcc  | aagaaaaatt | ttttggggac | caagttttga | ggattaatgt | 100  |
| cagaaatgga  | gacgagatca | gcaaattgag | tcaactagtg | aattcaaaca | 150  |
| acttgaagct  | caatttctgg | aaatctccct | cctccttcaa | tcggcctgtg | 200  |
| gatgtcctgg  | tcccatctgt | cagtctgcag | gcatttaa   | ccttcctgag | 250  |
| atcccagggc  | ttagagtacg | cagtgacaat | tgaggacctg | caggcccttt | 300  |
| tagacaatga  | agatgatgaa | atgcaacaca | atgaagggca | agaacggagc | 350  |
| agtaataact  | tcaactacgg | ggcttaccat | tccctggaag | ctatttacca | 400  |
| cgagatggac  | aacattgccg | cagactttcc | tgacctggcg | aggagggtga | 450  |
| agattggaca  | ttcgtttgaa | aaccggccga | tgtatgtact | gaagttcagc | 500  |
| actgggaaag  | gcgtgaggcg | gccggccgtt | tggctgaatg | caggcatcca | 550  |
| ttcccagagag | tggatctccc | aggccactgc | aatctggacg | gcaaggaaga | 600  |
| ttgtatctga  | ttaccagagg | gatccagcta | tcacctccat | cttgagaaaa | 650  |
| atggatatatt | tcttgttgcc | tgtggccaat | cctgatggat | atgtgtatac | 700  |
| tcaaaactcaa | aaccgattat | ggaggaagac | gcggtcccga | aatcctggaa | 750  |
| gctcctgcat  | tggtgctgac | ccaaatagaa | actggaacgc | tagttttgca | 800  |
| ggaaagggag  | ccagcgacaa | cccttgctcc | gaagtgtacc | atggacccca | 850  |
| cgccaattcg  | gaagtggagg | tgaaatcagt | ggtagatttc | atccaaaaac | 900  |
| atgggaattt  | caagggcttc | atcgacctgc | acagctactc | gcagctgctg | 950  |
| atgtatccat  | atgggtactc | agtcaaaaag | gccccagatg | ccgaggaact | 1000 |
| cgacaaggtg  | gcgaggcttg | cggccaaagc | tctggcttct | gtgtcgggca | 1050 |
| ctgagtacca  | agtgggtccc | acctgcacca | ctgtctatcc | agctagcggg | 1100 |



•



|            |            |            |             |            |      |
|------------|------------|------------|-------------|------------|------|
| tgtgtgtgtg | tgtgtgtgtg | tgtgtgtgtt | tgtgtgtgtg  | tgtctgtcta | 2550 |
| ttttgtatcc | tggaccacaa | gttcctaagt | agagcaagaa  | ttcatcaacc | 2600 |
| agctgcctct | tgtttcattt | cacctcagca | cgtaccatct  | gtccttttgt | 2650 |
| tgttgttgtt | ttgtttttgt | ttttttgctt | ttaccaaaca  | tgtctgtaaa | 2700 |
| tcttaacctc | ctgcctagga | tttgtacagc | atctgggtgtg | tgcttataag | 2750 |
| ccaataaata | ttcaatgtga | aaaaaaaaaa | aaaaaa      |            | 2786 |

```
<210> 234
<211> 421
<212> PRT
<213> Homo sapiens
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|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> 234 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Met       | Arg | Trp | Ile | Leu | Phe | Ile | Gly | Ala | Leu | Ile | Gly | Ser | Ser | Ile |  |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Cys       | Gly | Gln | Glu | Lys | Phe | Phe | Gly | Asp | Gln | Val | Leu | Arg | Ile | Asn |  |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Val       | Arg | Asn | Gly | Asp | Glu | Ile | Ser | Lys | Leu | Ser | Gln | Leu | Val | Asn |  |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Ser       | Asn | Asn | Leu | Lys | Leu | Asn | Phe | Trp | Lys | Ser | Pro | Ser | Ser | Phe |  |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Asn       | Arg | Pro | Val | Asp | Val | Leu | Val | Pro | Ser | Val | Ser | Leu | Gln | Ala |  |
|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Phe       | Lys | Ser | Phe | Leu | Arg | Ser | Gln | Gly | Leu | Glu | Tyr | Ala | Val | Thr |  |
|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Ile       | Glu | Asp | Leu | Gln | Ala | Leu | Leu | Asp | Asn | Glu | Asp | Asp | Glu | Met |  |
|           |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Gln       | His | Asn | Glu | Gly | Gln | Glu | Arg | Ser | Ser | Asn | Asn | Phe | Asn | Tyr |  |
|           |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Gly       | Ala | Tyr | His | Ser | Leu | Glu | Ala | Ile | Tyr | His | Glu | Met | Asp | Asn |  |
|           |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ile       | Ala | Ala | Asp | Phe | Pro | Asp | Leu | Ala | Arg | Arg | Val | Lys | Ile | Gly |  |
|           |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| His       | Ser | Phe | Glu | Asn | Arg | Pro | Met | Tyr | Val | Leu | Lys | Phe | Ser | Thr |  |
|           |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Gly       | Lys | Gly | Val | Arg | Arg | Pro | Ala | Val | Trp | Leu | Asn | Ala | Gly | Ile |  |
|           |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| His       | Ser | Arg | Glu | Trp | Ile | Ser | Gln | Ala | Thr | Ala | Ile | Trp | Thr | Ala |  |
|           |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Arg | Lys | Ile | Val | Ser<br>200 | Asp | Tyr | Gln | Arg | Asp<br>205 | Pro | Ala | Ile | Thr | Ser<br>210 |
| Ile | Leu | Glu | Lys | Met<br>215 | Asp | Ile | Phe | Leu | Leu<br>220 | Pro | Val | Ala | Asn | Pro<br>225 |
| Asp | Gly | Tyr | Val | Tyr<br>230 | Thr | Gln | Thr | Gln | Asn<br>235 | Arg | Leu | Trp | Arg | Lys<br>240 |
| Thr | Arg | Ser | Arg | Asn<br>245 | Pro | Gly | Ser | Ser | Cys<br>250 | Ile | Gly | Ala | Asp | Pro<br>255 |
| Asn | Arg | Asn | Trp | Asn<br>260 | Ala | Ser | Phe | Ala | Gly<br>265 | Lys | Gly | Ala | Ser | Asp<br>270 |
| Asn | Pro | Cys | Ser | Glu<br>275 | Val | Tyr | His | Gly | Pro<br>280 | His | Ala | Asn | Ser | Glu<br>285 |
| Val | Glu | Val | Lys | Ser<br>290 | Val | Val | Asp | Phe | Ile<br>295 | Gln | Lys | His | Gly | Asn<br>300 |
| Phe | Lys | Gly | Phe | Ile<br>305 | Asp | Leu | His | Ser | Tyr<br>310 | Ser | Gln | Leu | Leu | Met<br>315 |
| Tyr | Pro | Tyr | Gly | Tyr<br>320 | Ser | Val | Lys | Lys | Ala<br>325 | Pro | Asp | Ala | Glu | Glu<br>330 |
| Leu | Asp | Lys | Val | Ala<br>335 | Arg | Leu | Ala | Ala | Lys<br>340 | Ala | Leu | Ala | Ser | Val<br>345 |
| Ser | Gly | Thr | Glu | Tyr<br>350 | Gln | Val | Gly | Pro | Thr<br>355 | Cys | Thr | Thr | Val | Tyr<br>360 |
| Pro | Ala | Ser | Gly | Ser<br>365 | Ser | Ile | Asp | Trp | Ala<br>370 | Tyr | Asp | Asn | Gly | Ile<br>375 |
| Lys | Phe | Ala | Phe | Thr<br>380 | Phe | Glu | Leu | Arg | Asp<br>385 | Thr | Gly | Thr | Tyr | Gly<br>390 |
| Phe | Leu | Leu | Pro | Ala<br>395 | Asn | Gln | Ile | Ile | Pro<br>400 | Thr | Ala | Glu | Glu | Thr<br>405 |
| Trp | Leu | Gly | Leu | Lys<br>410 | Thr | Ile | Met | Glu | His<br>415 | Val | Arg | Asp | Asn | Leu<br>420 |

Tyr

<210> 235

<211> 1743

<212> DNA

<213> Homo sapiens

<400> 235

caaccatgca aggacagggc aggagaagag gaacctgcaa agacatattt 50

tgttccaaaa tggcatctta cctttatgga gtactctttg ctggttggcct 100



|             |            |             |            |             |      |
|-------------|------------|-------------|------------|-------------|------|
| ctgtgctcca  | atctactgtg | tgtccccggc  | caatgcccc  | agtgcatacc  | 150  |
| cccgcccttc  | ctccacaaag | agcaccacctg | cctcacaggt | gtattccctc  | 200  |
| aacaccgact  | ttgccttccg | cctataccgc  | aggctggttt | tggagacccc  | 250  |
| gagtcagaac  | atcttcttct | cccctgtgag  | tgtctccact | tccctggcca  | 300  |
| tgctctccct  | tggggcccac | tcagtcacca  | agaccagat  | tctccagggc  | 350  |
| ctggggcttca | acctcacaca | cacaccagag  | tctgccatcc | accagggctt  | 400  |
| ccagcacctg  | gttcactcac | tgactgttcc  | cagcaaagac | ctgaccttga  | 450  |
| agatgggaag  | tgccctcttc | gtcaagaagg  | agctgcagct | gcaggcaaat  | 500  |
| ttcttgggca  | atgtcaagag | gctgtatgaa  | gcagaagtct | tttctacaga  | 550  |
| tttctccaac  | ccctccattg | cccaggcgag  | gatcaacagc | catgtgaaaa  | 600  |
| agaagaccca  | agggaagggt | gtagacataa  | tccaaggcct | tgaccttctg  | 650  |
| acggccatgg  | ttctggtgaa | tcacattttc  | tttaaagcca | agtgggagaa  | 700  |
| gccctttcac  | cttgaatata | caagaaagaa  | cttcccattc | ctgggtgggcg | 750  |
| agcaggtcac  | tgtgcaagtc | cccatgatgc  | accagaaaga | gcagttcgct  | 800  |
| tttggggtgg  | atacagagct | gaactgcttt  | gtgctgcaga | tggattacaa  | 850  |
| gggagatgcc  | gtggccttct | ttgtcctccc  | tagcaagggc | aagatgaggc  | 900  |
| aactggaaca  | ggccttgtca | gccagaacac  | tgataaagtg | gagccactca  | 950  |
| ctccagaaaa  | ggtggataga | ggtgttcatc  | cccagatttt | ccatttctgc  | 1000 |
| ctcctacaat  | ctggaaacca | tcctcccga   | gatgggcac  | caaatgcct   | 1050 |
| ttgacaaaaa  | tgctgatttt | tctggaattg  | caaagagaga | ctccctgcag  | 1100 |
| gtttctaaag  | caaccacaa  | ggctgtgctg  | gatgtcagtg | aagagggcac  | 1150 |
| tgaggccaca  | gcagctacca | ccaccaagtt  | catagtccga | tcgaaggatg  | 1200 |
| gtccctctta  | cttcactgtc | tccttcaata  | ggaccttcct | gatgatgatt  | 1250 |
| acaaataaag  | ccacagacgg | tattctcttt  | ctagggaaa  | tggaaaatcc  | 1300 |
| cactaaatcc  | taggtgggaa | atggcctgtt  | aactgatggc | acattgctaa  | 1350 |
| tgacacaagaa | ataacaaacc | acatccctct  | ttctgttctg | aggggtgcatt | 1400 |
| tgaccccagt  | ggagctggat | tcgctggcag  | ggatgccact | tccaaggctc  | 1450 |
| aatcaccaaa  | ccatcaacag | ggaccccagt  | cacaagccaa | cacccattaa  | 1500 |





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<210> 236
<211> 417
<212> PRT
<213> Homo sapiens
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|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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| <400> 236 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met       | Ala | Ser | Tyr | Leu | Tyr | Gly | Val | Leu | Phe | Ala | Val | Gly | Leu | Cys |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ala       | Pro | Ile | Tyr | Cys | Val | Ser | Pro | Ala | Asn | Ala | Pro | Ser | Ala | Tyr |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Pro       | Arg | Pro | Ser | Ser | Thr | Lys | Ser | Thr | Pro | Ala | Ser | Gln | Val | Tyr |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ser       | Leu | Asn | Thr | Asp | Phe | Ala | Phe | Arg | Leu | Tyr | Arg | Arg | Leu | Val |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Leu       | Glu | Thr | Pro | Ser | Gln | Asn | Ile | Phe | Phe | Ser | Pro | Val | Ser | Val |
|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ser       | Thr | Ser | Leu | Ala | Met | Leu | Ser | Leu | Gly | Ala | His | Ser | Val | Thr |
|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Lys       | Thr | Gln | Ile | Leu | Gln | Gly | Leu | Gly | Phe | Asn | Leu | Thr | His | Thr |
|           |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Pro       | Glu | Ser | Ala | Ile | His | Gln | Gly | Phe | Gln | His | Leu | Val | His | Ser |
|           |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Leu       | Thr | Val | Pro | Ser | Lys | Asp | Leu | Thr | Leu | Lys | Met | Gly | Ser | Ala |
|           |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Leu       | Phe | Val | Lys | Lys | Glu | Leu | Gln | Leu | Gln | Ala | Asn | Phe | Leu | Gly |
|           |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Asn       | Val | Lys | Arg | Leu | Tyr | Glu | Ala | Glu | Val | Phe | Ser | Thr | Asp | Phe |
|           |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Ser       | Asn | Pro | Ser | Ile | Ala | Gln | Ala | Arg | Ile | Asn | Ser | His | Val | Lys |
|           |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Lys       | Lys | Thr | Gln | Gly | Lys | Val | Val | Asp | Ile | Ile | Gln | Gly | Leu | Asp |
|           |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Leu       | Leu | Thr | Ala | Met | Val | Leu | Val | Asn | His | Ile | Phe | Phe | Lys | Ala |
|           |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Lys | Trp | Glu | Lys | Pro<br>215 | Phe | His | Leu | Glu | Tyr<br>220 | Thr | Arg | Lys | Asn | Phe<br>225 |
| Pro | Phe | Leu | Val | Gly<br>230 | Glu | Gln | Val | Thr | Val<br>235 | Gln | Val | Pro | Met | Met<br>240 |
| His | Gln | Lys | Glu | Gln<br>245 | Phe | Ala | Phe | Gly | Val<br>250 | Asp | Thr | Glu | Leu | Asn<br>255 |
| Cys | Phe | Val | Leu | Gln<br>260 | Met | Asp | Tyr | Lys | Gly<br>265 | Asp | Ala | Val | Ala | Phe<br>270 |
| Phe | Val | Leu | Pro | Ser<br>275 | Lys | Gly | Lys | Met | Arg<br>280 | Gln | Leu | Glu | Gln | Ala<br>285 |
| Leu | Ser | Ala | Arg | Thr<br>290 | Leu | Ile | Lys | Trp | Ser<br>295 | His | Ser | Leu | Gln | Lys<br>300 |
| Arg | Trp | Ile | Glu | Val<br>305 | Phe | Ile | Pro | Arg | Phe<br>310 | Ser | Ile | Ser | Ala | Ser<br>315 |
| Tyr | Asn | Leu | Glu | Thr<br>320 | Ile | Leu | Pro | Lys | Met<br>325 | Gly | Ile | Gln | Asn | Ala<br>330 |
| Phe | Asp | Lys | Asn | Ala<br>335 | Asp | Phe | Ser | Gly | Ile<br>340 | Ala | Lys | Arg | Asp | Ser<br>345 |
| Leu | Gln | Val | Ser | Lys<br>350 | Ala | Thr | His | Lys | Ala<br>355 | Val | Leu | Asp | Val | Ser<br>360 |
| Glu | Glu | Gly | Thr | Glu<br>365 | Ala | Thr | Ala | Ala | Thr<br>370 | Thr | Thr | Lys | Phe | Ile<br>375 |
| Val | Arg | Ser | Lys | Asp<br>380 | Gly | Pro | Ser | Tyr | Phe<br>385 | Thr | Val | Ser | Phe | Asn<br>390 |
| Arg | Thr | Phe | Leu | Met<br>395 | Met | Ile | Thr | Asn | Lys<br>400 | Ala | Thr | Asp | Gly | Ile<br>405 |
| Leu | Phe | Leu | Gly | Lys<br>410 | Val | Glu | Asn | Pro | Thr<br>415 | Lys | Ser |     |     |            |

<210> 237

<211> 23

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 237

caaccatgca aggacagggc agg 23

<210> 238

<211> 47

<212> DNA



### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 238

ctttgctgtt ggctctctgtg ctcccaacca tgcaaggaca gggcagg 47

<210> 239

<211> 24

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 239

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<210> 240

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 240

ggtataggcg gaaggcaaag tcgg 24

<210> 241

<211> 48

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe.

<400> 241

ggcatcttac ctttatggag tactctttgc tgttggcctc tgtgctcc 48

<210> 242

<211> 2436

<212> DNA

<213> Homo sapiens

<400> 242

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ctttctcaag aatcctctgt tctttgccct ctaaagtctt ggtacatcta 200

ggacccaggc atcttgcttt ccagccacaa agagacagat gaagatgcag 250







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<210> 243  
<211> 596  
<212> PRT  
<213> Homo sapiens

<400> 243  
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Ala Asn Thr Gly Ser Ser Val Ile Ser Ser Gly Ala Ser Thr Ala  
35 40 45  
Thr Asn Ser Gly Ser Ser Val Thr Ser Ser Gly Val Ser Thr Ala  
50 55 60  
Thr Ile Ser Gly Ser Ser Val Thr Ser Asn Gly Val Ser Ile Val  
65 70 75  
Thr Asn Ser Glu Phe His Thr Thr Ser Ser Gly Ile Ser Thr Ala  
80 85 90  
Thr Asn Ser Glu Phe Ser Thr Ala Ser Ser Gly Ile Ser Ile Ala  
95 100 105



|   |     |     |     |
|---|-----|-----|-----|
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 110 | 115 | 120 |
| Thr Asn Ser Glu Ser Ser Thr Pro Ser Ser Gly Ala Ser Thr Val | 125 | 130 | 135 |
| Thr Asn Ser Gly Ser Ser Val Thr Ser Ser Gly Ala Ser Thr Ala | 140 | 145 | 150 |
| Thr Asn Ser Glu Ser Ser Thr Val Ser Ser Arg Ala Ser Thr Ala | 155 | 160 | 165 |
| Thr Asn Ser Glu Ser Ser Thr Leu Ser Ser Gly Ala Ser Thr Ala | 170 | 175 | 180 |
| Thr Asn Ser Asp Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 185 | 190 | 195 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 200 | 205 | 210 |
| Thr Asn Ser Glu Ser Ser Thr Val Ser Ser Arg Ala Ser Thr Ala | 215 | 220 | 225 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 230 | 235 | 240 |
| Thr Asn Ser Glu Ser Arg Thr Thr Ser Asn Gly Ala Gly Thr Ala | 245 | 250 | 255 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 260 | 265 | 270 |
| Thr Asn Ser Asp Ser Ser Thr Val Ser Ser Gly Ala Ser Thr Ala | 275 | 280 | 285 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 290 | 295 | 300 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Ser Thr Ala | 305 | 310 | 315 |
| Thr Asn Ser Asp Ser Ser Thr Thr Ser Ser Gly Ala Gly Thr Ala | 320 | 325 | 330 |
| Thr Asn Ser Glu Ser Ser Thr Val Ser Ser Gly Ile Ser Thr Val | 335 | 340 | 345 |
| Thr Asn Ser Glu Ser Ser Thr Pro Ser Ser Gly Ala Asn Thr Ala | 350 | 355 | 360 |
| Thr Asn Ser Glu Ser Ser Thr Thr Ser Ser Gly Ala Asn Thr Ala | 365 | 370 | 375 |
| Thr Asn Ser Glu Ser Ser Thr Val Ser Ser Gly Ala Ser Thr Ala | 380 | 385 | 390 |







### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 245

gtcagagttg gtggctgtgc tagc 24

<210> 246

<211> 48

<212> DNA

### <21'3> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 246

ggacccaggc atcttgcttt ccagccacaa agagacagat gaagatgc 48

<210> 247

<211> 957

<212> DNA

<213> Homo sapiens

<400> 247

gggagagagg ataaatagca gcgtggcttc cctggctcct ctctgcatcc 50

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tecctccttc tgctactggg ggcctgtct ggatgggcgg ccagcgatga 150

ccccattgag aaggtcattg aagggatcaa ccgagggctg agcaatgcag 200

agagagaggt gggcaaggcc ctggatggca tcaacagtgg aatcacgcat 250

gccggaaggg aagtggagaa ggttttcaac ggacttagca acatggggag 300

ccacaccggc aaggagttgg acaaaggcgt ccaggggctc aaccacggca 350

tggaacaggt tgcccatgag atcaaccatg gtattggaca agcaggaaag 400

gaaqcagaga agcttggcca tgggggtcaac aacgctgctg gacaggcccg 450

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caggctggaa aggaagtgga gaagcttggc caaggtgccc accatgctgc 600

tggccaggcc gggaaggagc tgcagaatgc tcataatggg gtcaaccaag 650

ccagcaagga ggccaaccag ctgctgaatg gcaaccatca aagcggatct 700

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<210> 248  
 <211> 247  
 <212> PRT  
 <213> Homo sapiens

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 Leu Gly Ala Leu Ser Gly Trp Ala Ala Ser Asp Asp Pro Ile Glu  
 20 25 30  
 Lys Val Ile Glu Gly Ile Asn Arg Gly Leu Ser Asn Ala Glu Arg  
 35 40 45  
 Glu Val Gly Lys Ala Leu Asp Gly Ile Asn Ser Gly Ile Thr His  
 50 55 60  
 Ala Gly Arg Glu Val Glu Lys Val Phe Asn Gly Leu Ser Asn Met  
 65 70 75  
 Gly Ser His Thr Gly Lys Glu Leu Asp Lys Gly Val Gln Gly Leu  
 80 85 90  
 Asn His Gly Met Asp Lys Val Ala His Glu Ile Asn His Gly Ile  
 95 100 105  
 Gly Gln Ala Gly Lys Glu Ala Glu Lys Leu Gly His Gly Val Asn  
 110 115 120  
 Asn Ala Ala Gly Gln Ala Gly Lys Glu Ala Asp Lys Ala Val Gln  
 125 130 135  
 Gly Phe His Thr Gly Val His Gln Ala Gly Lys Glu Ala Glu Lys  
 140 145 150  
 Leu Gly Gln Gly Val Asn His Ala Ala Asp Gln Ala Gly Lys Glu  
 155 160 165  
 Val Glu Lys Leu Gly Gln Gly Ala His His Ala Ala Gly Gln Ala  
 170 175 180  
 Gly Lys Glu Leu Gln Asn Ala His Asn Gly Val Asn Gln Ala Ser  
 185 190 195  
 Lys Glu Ala Asn Gln Leu Leu Asn Gly Asn His Gln Ser Gly Ser  
 200 205 210  
 Ser Ser His Gln Gly Gly Ala Thr Thr Thr Pro Leu Ala Ser Gly



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|            |            |            |            |            |      |
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| acattatccc | gctgccaccg | gctgccctgt | ctcactgcag | attcaggacc | 3250 |
| agcttgggct | gcgtgcgttc | tgccttgcca | gtcagccgag | gatgtagttg | 3300 |
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| tttcgtgaca | atgtacgcct | ttccctcaga | attcagggaa | gagactgtcg | 3500 |
| cctgccttcc | tccgttgttg | cgtagaacc  | cggtgcccc  | ttcccaccat | 3550 |
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| ctggctctct | ccccagtccc | cagttcacc  | tccatccctc | accttctctc | 3650 |
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<210> 253

<211> 837

<212> PRT

<213> Homo sapiens

<400> 253

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Leu Leu Leu Leu Leu Gln Pro Pro Pro Pro Thr Trp Ala Leu Ser  
35 40 45

Pro Arg Ile Ser Leu Pro Leu Gly Ser Glu Glu Arg Pro Phe Leu  
50 55 60

Arg Phe Glu Ala Glu His Ile Ser Asn Tyr Thr Ala Leu Leu Leu  
65 70 75

Ser Arg Asp Gly Arg Thr Leu Tyr Val Gly Ala Arg Glu Ala Leu  
80 85 90

Phe Ala Leu Ser Ser Asn Leu Ser Phe Leu Pro Gly Gly Glu Tyr  
95 100 105

Gln Glu Leu Leu Trp Gly Ala Asp Ala Glu Lys Lys Gln Gln Cys  
110 115 120



|                 |                     |                     |     |
|-----------------|---------------------|---------------------|-----|
| Ser Phe Lys Gly | Lys Asp Pro Gln Arg | Asp Cys Gln Asn Tyr | Ile |
| 125             |                     | 130                 | 135 |
| Lys Ile Leu Leu | Pro Leu Ser Gly Ser | His Leu Phe Thr Cys | Gly |
| 140             |                     | 145                 | 150 |
| Thr Ala Ala Phe | Ser Pro Met Cys Thr | Tyr Ile Asn Met Glu | Asn |
| 155             |                     | 160                 | 165 |
| Phe Thr Leu Ala | Arg Asp Glu Lys Gly | Asn Val Leu Leu Glu | Asp |
| 170             |                     | 175                 | 180 |
| Gly Lys Gly Arg | Cys Pro Phe Asp Pro | Asn Phe Lys Ser Thr | Ala |
| 185             |                     | 190                 | 195 |
| Leu Val Val Asp | Gly Glu Leu Tyr Thr | Gly Thr Val Ser Ser | Phe |
| 200             |                     | 205                 | 210 |
| Gln Gly Asn Asp | Pro Ala Ile Ser Arg | Ser Gln Ser Leu Arg | Pro |
| 215             |                     | 220                 | 225 |
| Thr Lys Thr Glu | Ser Ser Leu Asn Trp | Leu Gln Asp Pro Ala | Phe |
| 230             |                     | 235                 | 240 |
| Val Ala Ser Ala | Tyr Ile Pro Glu Ser | Leu Gly Ser Leu Gln | Gly |
| 245             |                     | 250                 | 255 |
| Asp Asp Asp Lys | Ile Tyr Phe Phe Phe | Ser Glu Thr Gly Gln | Glu |
| 260             |                     | 265                 | 270 |
| Phe Glu Phe Phe | Glu Asn Thr Ile Val | Ser Arg Ile Ala Arg | Ile |
| 275             |                     | 280                 | 285 |
| Cys Lys Gly Asp | Glu Gly Gly Glu Arg | Val Leu Gln Gln Arg | Trp |
| 290             |                     | 295                 | 300 |
| Thr Ser Phe Leu | Lys Ala Gln Leu Leu | Cys Ser Arg Pro Asp | Asp |
| 305             |                     | 310                 | 315 |
| Gly Phe Pro Phe | Asn Val Leu Gln Asp | Val Phe Thr Leu Ser | Pro |
| 320             |                     | 325                 | 330 |
| Ser Pro Gln Asp | Trp Arg Asp Thr Leu | Phe Tyr Gly Val Phe | Thr |
| 335             |                     | 340                 | 345 |
| Ser Gln Trp His | Arg Gly Thr Thr Glu | Gly Ser Ala Val Cys | Val |
| 350             |                     | 355                 | 360 |
| Phe Thr Met Lys | Asp Val Gln Arg Val | Phe Ser Gly Leu Tyr | Lys |
| 365             |                     | 370                 | 375 |
| Glu Val Asn Arg | Glu Thr Gln Gln Trp | Tyr Thr Val Thr His | Pro |
| 380             |                     | 385                 | 390 |
| Val Pro Thr Pro | Arg Pro Gly Ala Cys | Ile Thr Asn Ser Ala | Arg |
| 395             |                     | 400                 | 405 |















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<210> 260

<211> 802

<212> PRT

<213> Homo sapiens



&lt;400&gt; 260

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| Met | Ala | Ala | Arg | Gly | Arg | Arg | Ala | Trp | Leu | Ser | Val | Leu | Leu | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Val | Leu | Gly | Phe | Val | Leu | Ala | Ser | Arg | Leu | Val | Leu | Pro | Arg |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala | Ser | Glu | Leu | Lys | Arg | Ala | Gly | Pro | Arg | Arg | Arg | Ala | Ser | Pro |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Glu | Gly | Cys | Arg | Ser | Gly | Gln | Ala | Ala | Ala | Ser | Gln | Ala | Gly | Gly |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Arg | Gly | Asp | Ala | Arg | Gly | Ala | Gln | Leu | Trp | Pro | Pro | Gly | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Asp | Pro | Asp | Gly | Gly | Pro | Arg | Asp | Arg | Asn | Phe | Leu | Phe | Val | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Val | Met | Thr | Ala | Gln | Lys | Tyr | Leu | Gln | Thr | Arg | Ala | Val | Ala | Ala |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Tyr | Arg | Thr | Trp | Ser | Lys | Thr | Ile | Pro | Gly | Lys | Val | Gln | Phe | Phe |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ser | Ser | Glu | Gly | Ser | Asp | Thr | Ser | Val | Pro | Ile | Pro | Val | Val | Pro |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Leu | Arg | Gly | Val | Asp | Asp | Ser | Tyr | Pro | Pro | Gln | Lys | Lys | Ser | Phe |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Met | Met | Leu | Lys | Tyr | Met | His | Asp | His | Tyr | Leu | Asp | Lys | Tyr | Glu |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Trp | Phe | Met | Arg | Ala | Asp | Asp | Asp | Val | Tyr | Ile | Lys | Gly | Asp | Arg |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Glu | Asn | Phe | Leu | Arg | Ser | Leu | Asn | Ser | Ser | Glu | Pro | Leu | Phe |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Leu | Gly | Gln | Thr | Gly | Leu | Gly | Thr | Thr | Glu | Glu | Met | Gly | Lys | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ala | Leu | Glu | Pro | Gly | Glu | Asn | Phe | Cys | Met | Gly | Gly | Pro | Gly | Val |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Ile | Met | Ser | Arg | Glu | Val | Leu | Arg | Arg | Met | Val | Pro | His | Ile | Gly |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Lys | Cys | Leu | Arg | Glu | Met | Tyr | Thr | Thr | His | Glu | Asp | Val | Glu | Val |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gly | Arg | Cys | Val | Arg | Arg | Phe | Ala | Gly | Val | Gln | Cys | Val | Trp | Ser |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Tyr | Glu | Met | Arg | Gln | Leu | Phe | Tyr | Glu | Asn | Tyr | Glu | Gln | Asn | Lys |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 275        |     |     |     |     | 280        |     |     |     |     | 285        |
| Lys | Gly | Tyr | Ile | Arg<br>290 | Asp | Leu | His | Asn | Ser<br>295 | Lys | Ile | His | Gln | Ala<br>300 |
| Ile | Thr | Leu | His | Pro<br>305 | Asn | Lys | Asn | Pro | Pro<br>310 | Tyr | Gln | Tyr | Arg | Leu<br>315 |
| His | Ser | Tyr | Met | Leu<br>320 | Ser | Arg | Lys | Ile | Ser<br>325 | Glu | Leu | Arg | His | Arg<br>330 |
| Thr | Ile | Gln | Leu | His<br>335 | Arg | Glu | Ile | Val | Leu<br>340 | Met | Ser | Lys | Tyr | Ser<br>345 |
| Asn | Thr | Glu | Ile | His<br>350 | Lys | Glu | Asp | Leu | Gln<br>355 | Leu | Gly | Ile | Pro | Pro<br>360 |
| Ser | Phe | Met | Arg | Phe<br>365 | Gln | Pro | Arg | Gln | Arg<br>370 | Glu | Glu | Ile | Leu | Glu<br>375 |
| Trp | Glu | Phe | Leu | Thr<br>380 | Gly | Lys | Tyr | Leu | Tyr<br>385 | Ser | Ala | Val | Asp | Gly<br>390 |
| Gln | Pro | Pro | Arg | Arg<br>395 | Gly | Met | Asp | Ser | Ala<br>400 | Gln | Arg | Glu | Ala | Leu<br>405 |
| Asp | Asp | Ile | Val | Met<br>410 | Gln | Val | Met | Glu | Met<br>415 | Ile | Asn | Ala | Asn | Ala<br>420 |
| Lys | Thr | Arg | Gly | Arg<br>425 | Ile | Ile | Asp | Phe | Lys<br>430 | Glu | Ile | Gln | Tyr | Gly<br>435 |
| Tyr | Arg | Arg | Val | Asn<br>440 | Pro | Met | Tyr | Gly | Ala<br>445 | Glu | Tyr | Ile | Leu | Asp<br>450 |
| Leu | Leu | Leu | Leu | Tyr<br>455 | Lys | Lys | His | Lys | Gly<br>460 | Lys | Lys | Met | Thr | Val<br>465 |
| Pro | Val | Arg | Arg | His<br>470 | Ala | Tyr | Leu | Gln | Gln<br>475 | Thr | Phe | Ser | Lys | Ile<br>480 |
| Gln | Phe | Val | Glu | His<br>485 | Glu | Glu | Leu | Asp | Ala<br>490 | Gln | Glu | Leu | Ala | Lys<br>495 |
| Arg | Ile | Asn | Gln | Glu<br>500 | Ser | Gly | Ser | Leu | Ser<br>505 | Phe | Leu | Ser | Asn | Ser<br>510 |
| Leu | Lys | Lys | Leu | Val<br>515 | Pro | Phe | Gln | Leu | Pro<br>520 | Gly | Ser | Lys | Ser | Glu<br>525 |
| His | Lys | Glu | Pro | Lys<br>530 | Asp | Lys | Lys | Ile | Asn<br>535 | Ile | Leu | Ile | Pro | Leu<br>540 |
| Ser | Gly | Arg | Phe | Asp<br>545 | Met | Phe | Val | Arg | Phe<br>550 | Met | Gly | Asn | Phe | Glu<br>555 |
| Lys | Thr | Cys | Leu | Ile        | Pro | Asn | Gln | Asn | Val        | Lys | Leu | Val | Val | Leu        |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|--|--|--|--|--|--|--|--|--|--|--|-----|--|--|--|--|--|--|--|--|--|--|--|--|--|--|-----|
|     |     |     |     |     |     |     |     |     |     |     |     |     |     | 560 |     |     |  |  |  |  |  |  |  |  |  |  |  |  | 565 |  |  |  |  |  |  |  |  |  |  |  |  |  |  | 570 |
| Leu | Phe | Asn | Ser | Asp | 575 | Ser | Asn | Pro | Asp | Lys | Ala | Lys | Gln | Val | Glu | 585 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Leu | Met | Arg | Asp | Tyr | 590 | Arg | Ile | Lys | Tyr | Pro | Lys | Ala | Asp | Met | Gln | 600 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Ile | Leu | Pro | Val | Ser | 605 | Gly | Glu | Phe | Ser | Arg | Ala | Leu | Ala | Leu | Glu | 615 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Val | Gly | Ser | Ser | Gln | 620 | Phe | Asn | Asn | Glu | Ser | Leu | Leu | Phe | Phe | Cys | 630 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Asp | Val | Asp | Leu | Val | 635 | Phe | Thr | Thr | Glu | Phe | Leu | Gln | Arg | Cys | Arg | 645 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Ala | Asn | Thr | Val | Leu | 650 | Gly | Gln | Gln | Ile | Tyr | Phe | Pro | Ile | Ile | Phe | 660 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Ser | Gln | Tyr | Asp | Pro | 665 | Lys | Ile | Val | Tyr | Ser | Gly | Lys | Val | Pro | Ser | 675 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Asp | Asn | His | Phe | Ala | 680 | Phe | Thr | Gln | Lys | Thr | Gly | Phe | Trp | Arg | Asn | 690 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Tyr | Gly | Phe | Gly | Ile | 695 | Thr | Cys | Ile | Tyr | Lys | Gly | Asp | Leu | Val | Arg | 705 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Val | Gly | Gly | Phe | Asp | 710 | Val | Ser | Ile | Gln | Gly | Trp | Gly | Leu | Glu | Asp | 720 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Val | Asp | Leu | Phe | Asn | 725 | Lys | Val | Val | Gln | Ala | Gly | Leu | Lys | Thr | Phe | 735 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Arg | Ser | Gln | Glu | Val | 740 | Gly | Val | Val | His | Val | His | His | Pro | Val | Phe | 750 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Cys | Asp | Pro | Asn | Leu | 755 | Asp | Pro | Lys | Gln | Tyr | Lys | Met | Cys | Leu | Gly | 765 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Ser | Lys | Ala | Ser | Thr | 770 | Tyr | Gly | Ser | Thr | Gln | Gln | Leu | Ala | Glu | Met | 780 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Trp | Leu | Glu | Lys | Asn | 785 | Asp | Pro | Ser | Tyr | Ser | Lys | Ser | Ser | Asn | Asn | 795 |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |
| Asn | Gly | Ser | Val | Arg | 800 | Thr | Ala |     |     |     |     |     |     |     |     |     |  |  |  |  |  |  |  |  |  |  |  |  |     |  |  |  |  |  |  |  |  |  |  |  |  |  |  |     |

<210> 261

<211> 24

<212> DNA

<213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe



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gtgccactac ggggtgtgga cgac 24
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<210> 262
<211> 24
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 262
tcccatttct tccgtggtgc ccag 24
```

```
<210> 263
<211> 46
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 263
ccagaagaag tccttcatga tgctcaagta catgcacgac cactac 46
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<210> 264
<211> 1419
<212> DNA
<213> Homo sapiens
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<400> 264
ggacaaccgt  tgctgggtgt  cccagggcct  gaggcaggac  ggtactccgc  50
tgacaccttc  cctttcggcc  ttgaggttcc  cagcctgggtg  gccccaggac  100
gttccggtcg  catggcagag  tgctacggac  gacgcctatg  aagcccttag  150
tcctttctagt  tgcgcttttg  ctatggcctt  cgtctgtgcc  ggcttatccg  200
agcataactg  tgacacctga  tgaagagcaa  aacttgaatc  attatataca  250
agtttttagag  aacctagtag  gaagtgttcc  ctctggggag  ccaggtcgtg  300
agaaaaaatc  taactctcca  aaacatgttt  attctatagc  atcaaaggga  350
tcaaaattta  aggagctagt  tacacatgga  gacgcttcaa  ctgagaatga  400
tgttttaacc  aatcctatca  gtgaagaaac  tacaactttc  cctacaggag  450
gcttcacacc  ggaaatagga  aagaaaaaac  acacggaaag  taccgccattc  500
tggtcgatca  aaccaaacaa  tgtttccatt  gttttgcatg  cagaggaacc  550
ttatattgaa  aatgaagagc  cagagccaga  gccggagcca  gctgcaaaac  600
aaactgaggc  accaagaatg  ttgccagttg  ttactgaatc  atctacaagt  650

```



|             |            |            |             |            |      |
|-------------|------------|------------|-------------|------------|------|
| ccatatgtta  | cctcatacaa | gtcacctgtc | accacatttag | ataagagcac | 700  |
| tggcattgag  | atctctacag | aatcagaaga | tgttcctcag  | ctctcaggtg | 750  |
| aaactgcat   | agaaaaaccc | gaagagtttg | gaaagcaccc  | agagagtttg | 800  |
| aataatgatg  | acattttgaa | aaaaatttta | gatattaatt  | cacaagtgca | 850  |
| acaggcactt  | cttagtgaca | ccagcaaccc | agcatataga  | gaagatattg | 900  |
| aagcctctaa  | agatcaccta | aaacgaagcc | ttgctctagc  | agcagcagca | 950  |
| gaacataaat  | taaaaacaat | gtataagtcc | cagttattgc  | cagtaggacg | 1000 |
| aacaagtaat  | aaaattgatg | acatcgaaac | tgttattaac  | atgctgtgta | 1050 |
| attctagatc  | taaactctat | gaatatttag | atattaaatg  | tgttccacca | 1100 |
| gagatgagag  | aaaaagctgc | tacagtattc | aatacattaa  | aaaatatgtg | 1150 |
| tagatcaagg  | agagtcacag | ccttattaaa | agtttattaa  | acaataatat | 1200 |
| aaaaatttta  | aacctacttg | atattccata | acaaagctga  | tttaagcaaa | 1250 |
| ctgcattttt  | tcacaggaga | aataatcata | ttcgtaattt  | caaaagttgt | 1300 |
| ataaaaaatat | tttctattgt | agttcaaagt | tgccaacatc  | tttatgtgtc | 1350 |
| atgtgttatg  | aacaattttc | atatgcacta | aaaacctaat  | ttaaaataaa | 1400 |
| attttggttc  | aggaaaaaaa |            |             |            | 1419 |

<210> 265

<211> 350

<212> PRT

<213> Homo sapiens

<400> 265

Met Lys Pro Leu Val Leu Leu Val Ala Leu Leu Leu Trp Pro Ser  
1 5 10 15

Ser Val Pro Ala Tyr Pro Ser Ile Thr Val Thr Pro Asp Glu Glu  
20 25 30

Gln Asn Leu Asn His Tyr Ile Gln Val Leu Glu Asn Leu Val Arg  
35 40 45

Ser Val Pro Ser Gly Glu Pro Gly Arg Glu Lys Lys Ser Asn Ser  
50 55 60

Pro Lys His Val Tyr Ser Ile Ala Ser Lys Gly Ser Lys Phe Lys  
65 70 75

Glu Leu Val Thr His Gly Asp Ala Ser Thr Glu Asn Asp Val Leu  
80 85 90



|   |     |     |     |
|---|-----|-----|-----|
| Thr Asn Pro Ile Ser Glu Glu Thr Thr Thr Phe Pro Thr Gly Gly | 95  | 100 | 105 |
| Phe Thr Pro Glu Ile Gly Lys Lys Lys His Thr Glu Ser Thr Pro | 110 | 115 | 120 |
| Phe Trp Ser Ile Lys Pro Asn Asn Val Ser Ile Val Leu His Ala | 125 | 130 | 135 |
| Glu Glu Pro Tyr Ile Glu Asn Glu Glu Pro Glu Pro Glu Pro Glu | 140 | 145 | 150 |
| Pro Ala Ala Lys Gln Thr Glu Ala Pro Arg Met Leu Pro Val Val | 155 | 160 | 165 |
| Thr Glu Ser Ser Thr Ser Pro Tyr Val Thr Ser Tyr Lys Ser Pro | 170 | 175 | 180 |
| Val Thr Thr Leu Asp Lys Ser Thr Gly Ile Glu Ile Ser Thr Glu | 185 | 190 | 195 |
| Ser Glu Asp Val Pro Gln Leu Ser Gly Glu Thr Ala Ile Glu Lys | 200 | 205 | 210 |
| Pro Glu Glu Phe Gly Lys His Pro Glu Ser Trp Asn Asn Asp Asp | 215 | 220 | 225 |
| Ile Leu Lys Lys Ile Leu Asp Ile Asn Ser Gln Val Gln Gln Ala | 230 | 235 | 240 |
| Leu Leu Ser Asp Thr Ser Asn Pro Ala Tyr Arg Glu Asp Ile Glu | 245 | 250 | 255 |
| Ala Ser Lys Asp His Leu Lys Arg Ser Leu Ala Leu Ala Ala Ala | 260 | 265 | 270 |
| Ala Glu His Lys Leu Lys Thr Met Tyr Lys Ser Gln Leu Leu Pro | 275 | 280 | 285 |
| Val Gly Arg Thr Ser Asn Lys Ile Asp Asp Ile Glu Thr Val Ile | 290 | 295 | 300 |
| Asn Met Leu Cys Asn Ser Arg Ser Lys Leu Tyr Glu Tyr Leu Asp | 305 | 310 | 315 |
| Ile Lys Cys Val Pro Pro Glu Met Arg Glu Lys Ala Ala Thr Val | 320 | 325 | 330 |
| Phe Asn Thr Leu Lys Asn Met Cys Arg Ser Arg Arg Val Thr Ala | 335 | 340 | 345 |
| Leu Leu Lys Val Tyr   | 350 |     |     |

&lt;210&gt; 266

&lt;211&gt; 2403

&lt;212&gt; DNA



**SECRET**

<400> 266

|            |            |            |             |             |      |
|------------|------------|------------|-------------|-------------|------|
| cggtctgagc | ggctcgagtg | aagagcctct | ccacgggtcc  | tgcgccctgag | 50   |
| acagctggcc | tgacctccaa | atcatccatc | caccctgtct  | gtcatctgtt  | 100  |
| ttcatagtgt | gagatcaacc | cacaggaata | tccatggctt  | ttgtgctcat  | 150  |
| tttggttctc | agtttctacg | agctggtgtc | aggacagtgg  | caagtcactg  | 200  |
| gaccgggcaa | gtttgtccag | gccttggtgg | gggaggacgc  | cgtgttctcc  | 250  |
| tgctccctct | ttcctgagac | cagtgcagag | gctatggaag  | tgcggttctt  | 300  |
| caggaatcag | ttccatgctg | tggtccacct | ctacagagat  | ggggaagact  | 350  |
| gggaatctaa | gcagatgcc  | cagtatcgag | ggagaactga  | gtttgtgaag  | 400  |
| gactccattg | caggggggcg | tgtctctcta | aggctaaaaa  | acatcactcc  | 450  |
| ctcggacatc | ggcctgtatg | ggtgctggtt | cagttcccag  | atttacgatg  | 500  |
| aggaggccac | ctgggagctg | cgggtggcag | cactgggctc  | acttcctctc  | 550  |
| atttccatcg | tgggatatgt | tgacggaggt | atccagttac  | tctgcctgtc  | 600  |
| ctcaggctgg | ttcccccagc | ccacagccaa | gtggaaaggt  | ccacaaggac  | 650  |
| aggatttgtc | ttcagactcc | agagcaaata | cagatgggta  | cagcctgtat  | 700  |
| gatgtggaga | tctccattat | agtcaggaa  | aatgctggga  | gcatattgtg  | 750  |
| ttccatccac | cttgctgagc | agagtcatga | ggtggaatcc  | aaggatttga  | 800  |
| taggagagac | gtttttccag | ccctcacctt | ggcgccctggc | ttctatttta  | 850  |
| ctcgggttac | tctgtggtgc | cctgtgtggt | gttgtcatgg  | ggatgataat  | 900  |
| tgttttcttc | aaatccaaag | ggaaaatcca | ggcggaactg  | gactggagaa  | 950  |
| gaaagcacgg | acaggcagaa | ttgagagacg | cccggaaaca  | cgcagtggag  | 1000 |
| gtgactctgg | atccagagac | ggctcaccgc | aagctctgcg  | tttctgatct  | 1050 |
| gaaaactgta | acccatagaa | aagctcccca | ggaggtgcct  | cactctgaga  | 1100 |
| agagatttac | aaggaagagt | gtggtggctt | ctcagggttt  | ccaagcaggg  | 1150 |
| agacattact | gggaggtgga | cgtgggacaa | aatgtagggg  | ggatatgtgg  | 1200 |
| agtgtgtcgg | gatgacgtag | acagggggaa | gaacaatgtg  | actttgtctc  | 1250 |
| ccaacaatgg | gtattgggtc | ctcagactga | caacagaaca  | tttgtatttc  | 1300 |
| acattcaatc | cccattttat | cagcctcccc | cccagcacc   | ctcctacacg  | 1350 |



agtaggggtc ttcttgact atgaggggtg gaccatctcc ttcttcaata 1400  
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<210> 267

<211> 466

<212> PRT

<213> Homo sapiens

<400> 267

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Phe | Val | Leu | Ile | Leu | Val | Leu | Ser | Phe | Tyr | Glu | Leu | Val |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gly | Gln | Trp | Gln | Val | Thr | Gly | Pro | Gly | Lys | Phe | Val | Gln | Ala |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Val | Gly | Glu | Asp | Ala | Val | Phe | Ser | Cys | Ser | Leu | Phe | Pro | Glu |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



| 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Ser | Ala | Glu | Ala | Met | Glu | Val | Arg | Phe | Phe | Arg | Asn | Gln | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| His | Ala | Val | Val | His | Leu | Tyr | Arg | Asp | Gly | Glu | Asp | Trp | Glu | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Lys | Gln | Met | Pro | Gln | Tyr | Arg | Gly | Arg | Thr | Glu | Phe | Val | Lys | Asp |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Ile | Ala | Gly | Gly | Arg | Val | Ser | Leu | Arg | Leu | Lys | Asn | Ile | Thr |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Pro | Ser | Asp | Ile | Gly | Leu | Tyr | Gly | Cys | Trp | Phe | Ser | Ser | Gln | Ile |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Tyr | Asp | Glu | Glu | Ala | Thr | Trp | Glu | Leu | Arg | Val | Ala | Ala | Leu | Gly |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ser | Leu | Pro | Leu | Ile | Ser | Ile | Val | Gly | Tyr | Val | Asp | Gly | Gly | Ile |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Gln | Leu | Leu | Cys | Leu | Ser | Ser | Gly | Trp | Phe | Pro | Gln | Pro | Thr | Ala |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Lys | Trp | Lys | Gly | Pro | Gln | Gly | Gln | Asp | Leu | Ser | Ser | Asp | Ser | Arg |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Ala | Asn | Ala | Asp | Gly | Tyr | Ser | Leu | Tyr | Asp | Val | Glu | Ile | Ser | Ile |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Ile | Val | Gln | Glu | Asn | Ala | Gly | Ser | Ile | Leu | Cys | Ser | Ile | His | Leu |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Ala | Glu | Gln | Ser | His | Glu | Val | Glu | Ser | Lys | Val | Leu | Ile | Gly | Glu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Thr | Phe | Phe | Gln | Pro | Ser | Pro | Trp | Arg | Leu | Ala | Ser | Ile | Leu | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Leu | Leu | Cys | Gly | Ala | Leu | Cys | Gly | Val | Val | Met | Gly | Met | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Ile | Val | Phe | Phe | Lys | Ser | Lys | Gly | Lys | Ile | Gln | Ala | Glu | Leu | Asp |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Trp | Arg | Arg | Lys | His | Gly | Gln | Ala | Glu | Leu | Arg | Asp | Ala | Arg | Lys |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| His | Ala | Val | Glu | Val | Thr | Leu | Asp | Pro | Glu | Thr | Ala | His | Pro | Lys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Leu | Cys | Val | Ser | Asp | Leu | Lys | Thr | Val | Thr | His | Arg | Lys | Ala | Pro |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Gln | Glu | Val | Pro | His | Ser | Glu | Lys | Arg | Phe | Thr | Arg | Lys | Ser | Val |



|                                     |                         |     |
|-------------------------------------|-------------------------|-----|
| 320                                 | 325                     | 330 |
| Val Ala Ser Gln Gly Phe Gln Ala Gly | Arg His Tyr Trp Glu Val |     |
| 335                                 | 340                     | 345 |
| Asp Val Gly Gln Asn Val Gly Trp Tyr | Val Gly Val Cys Arg Asp |     |
| 350                                 | 355                     | 360 |
| Asp Val Asp Arg Gly Lys Asn Asn Val | Thr Leu Ser Pro Asn Asn |     |
| 365                                 | 370                     | 375 |
| Gly Tyr Trp Val Leu Arg Leu Thr Thr | Glu His Leu Tyr Phe Thr |     |
| 380                                 | 385                     | 390 |
| Phe Asn Pro His Phe Ile Ser Leu Pro | Pro Ser Thr Pro Pro Thr |     |
| 395                                 | 400                     | 405 |
| Arg Val Gly Val Phe Leu Asp Tyr Glu | Gly Gly Thr Ile Ser Phe |     |
| 410                                 | 415                     | 420 |
| Phe Asn Thr Asn Asp Gln Ser Leu Ile | Tyr Thr Leu Leu Thr Cys |     |
| 425                                 | 430                     | 435 |
| Gln Phe Glu Gly Leu Leu Arg Pro Tyr | Ile Gln His Ala Met Tyr |     |
| 440                                 | 445                     | 450 |
| Asp Glu Glu Lys Gly Thr Pro Ile Phe | Ile Cys Pro Val Ser Trp |     |
| 455                                 | 460                     | 465 |

Gly

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 <211> 2103  
 <212> DNA  
 <213> Homo sapiens

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 gtcattcttca tatccctgat tgtcctggca gtgtgcattg gactcactgt 150  
 tcattatgtg agatataatc aaaagaagac ctacaattac tatagcacat 200  
 tgtcattttac aactgacaaa ctatatgctg agtttggcag agaggcttct 250  
 aacaatttta cagaaatgag ccagagactt gaatcaatgg tgaaaaatgc 300  
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 agatttcact ctactgagga tcttgaaact gtagataaaa ttgttcaact 450  
 tgttttacat gaaaagctgc aagatgctgt aggaccccct aaagtagatc 500



ctcactcagt taaaattaaa aaaatcaaca agacagaaac agacagctat 550  
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caggatgatg gatgtttgtg acaggatttg gagcactgaa aaatgatggt 1000  
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aacttgcaat gaacctcaag cttacaatga cgccataact cctagaatgt 1100  
tatgtgctgg ctcccttagaa ggaaaaacag atgcatgcca gggtgactct 1150  
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aatagtgagc tggggagatg aatgtgcgaa acccaacaag cctgggtgtt 1250  
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taagagacaa aagcctcatg gaacagataa catTTTTTTT tgtTTTTTg 1350  
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gctagatttg actgatctca ataaactgtt tgcttgatgc atgtattttc 1450  
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aatattagaa atgatcatat tcattatgaa aggtcaagca aagacagcag 1850  
aataccaatc acttcatcat ttaggaagta tgggaactaa gttaagggaag 1900



tccagaaaga agccaagata tacccttatt ttcattttcca aacaactact 1950  
atgataaatg tgaagaagat tctgtttttt tgtgacctat aataattata 2000  
caaaacttcat gcaatgtact tgttctaagc aaattaaagc aaatatttat 2050  
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cca 2103

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<211> 423  
<212> PRT  
<213> Homo sapiens

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35 40 45  
Asn Gln Lys Lys Thr Tyr Asn Tyr Tyr Ser Thr Leu Ser Phe Thr  
50 55 60  
Thr Asp Lys Leu Tyr Ala Glu Phe Gly Arg Glu Ala Ser Asn Asn  
65 70 75  
Phe Thr Glu Met Ser Gln Arg Leu Glu Ser Met Val Lys Asn Ala  
80 85 90  
Phe Tyr Lys Ser Pro Leu Arg Glu Glu Phe Val Lys Ser Gln Val  
95 100 105  
Ile Lys Phe Ser Gln Gln Lys His Gly Val Leu Ala His Met Leu  
110 115 120  
Leu Ile Cys Arg Phe His Ser Thr Glu Asp Pro Glu Thr Val Asp  
125 130 135  
Lys Ile Val Gln Leu Val Leu His Glu Lys Leu Gln Asp Ala Val  
140 145 150  
Gly Pro Pro Lys Val Asp Pro His Ser Val Lys Ile Lys Lys Ile  
155 160 165  
Asn Lys Thr Glu Thr Asp Ser Tyr Leu Asn His Cys Cys Gly Thr  
170 175 180  
Arg Arg Ser Lys Thr Leu Gly Gln Ser Leu Arg Ile Val Gly Gly  
185 190 195  
Thr Glu Val Glu Glu Gly Glu Trp Pro Trp Gln Ala Ser Leu Gln  
200 205 210



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Trp | Asp | Gly | Ser | His<br>215 | Arg | Cys | Gly | Ala | Thr<br>220 | Leu | Ile | Asn | Ala | Thr<br>225 |
| Trp | Leu | Val | Ser | Ala<br>230 | Ala | His | Cys | Phe | Thr<br>235 | Thr | Tyr | Lys | Asn | Pro<br>240 |
| Ala | Arg | Trp | Thr | Ala<br>245 | Ser | Phe | Gly | Val | Thr<br>250 | Ile | Lys | Pro | Ser | Lys<br>255 |
| Met | Lys | Arg | Gly | Leu<br>260 | Arg | Arg | Ile | Ile | Val<br>265 | His | Glu | Lys | Tyr | Lys<br>270 |
| His | Pro | Ser | His | Asp<br>275 | Tyr | Asp | Ile | Ser | Leu<br>280 | Ala | Glu | Leu | Ser | Ser<br>285 |
| Pro | Val | Pro | Tyr | Thr<br>290 | Asn | Ala | Val | His | Arg<br>295 | Val | Cys | Leu | Pro | Asp<br>300 |
| Ala | Ser | Tyr | Glu | Phe<br>305 | Gln | Pro | Gly | Asp | Val<br>310 | Met | Phe | Val | Thr | Gly<br>315 |
| Phe | Gly | Ala | Leu | Lys<br>320 | Asn | Asp | Gly | Tyr | Ser<br>325 | Gln | Asn | His | Leu | Arg<br>330 |
| Gln | Ala | Gln | Val | Thr<br>335 | Leu | Ile | Asp | Ala | Thr<br>340 | Thr | Cys | Asn | Glu | Pro<br>345 |
| Gln | Ala | Tyr | Asn | Asp<br>350 | Ala | Ile | Thr | Pro | Arg<br>355 | Met | Leu | Cys | Ala | Gly<br>360 |
| Ser | Leu | Glu | Gly | Lys<br>365 | Thr | Asp | Ala | Cys | Gln<br>370 | Gly | Asp | Ser | Gly | Gly<br>375 |
| Pro | Leu | Val | Ser | Ser<br>380 | Asp | Ala | Arg | Asp | Ile<br>385 | Trp | Tyr | Leu | Ala | Gly<br>390 |
| Ile | Val | Ser | Trp | Gly<br>395 | Asp | Glu | Cys | Ala | Lys<br>400 | Pro | Asn | Lys | Pro | Gly<br>405 |
| Val | Tyr | Thr | Arg | Val<br>410 | Thr | Ala | Leu | Arg | Asp<br>415 | Trp | Ile | Thr | Ser | Lys<br>420 |

Thr Gly Ile

<210> 270

<211> 1170

<212> DNA

<213> Homo sapiens

<400> 270

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cagacgtcag ctggtggatt cccgctgcat caaggcctac ccaactgtctc 150



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<210> 271
<211> 238
<212> PRT
<213> Homo sapiens
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|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Gly | Ser | Pro | Cys | Leu | Leu | Trp | Leu | Leu | Ala | Val | Thr | Phe |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Val | Pro | Arg | Ala | Gln | Pro | Leu | Ala | Pro | Gln | Asp | Phe | Glu | Glu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Glu | Glu | Ala | Asp | Glu | Thr | Glu | Thr | Ala | Trp | Pro | Pro | Leu | Pro | Ala |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |



Val Pro Cys Asp Tyr Asp His Cys Arg His Leu Gln Val Pro Cys  
 50 55 60  
 Lys Glu Leu Gln Arg Val Gly Pro Ala Ala Cys Leu Cys Pro Gly  
 65 70 75  
 Leu Ser Ser Pro Ala Gln Pro Pro Asp Pro Pro Arg Met Gly Glu  
 80 85 90  
 Val Arg Ile Ala Ala Glu Glu Gly Arg Ala Val Val His Trp Cys  
 95 100 105  
 Ala Pro Phe Ser Pro Val Leu His Tyr Trp Leu Leu Leu Trp Asp  
 110 115 120  
 Gly Ser Glu Ala Ala Gln Lys Gly Pro Pro Leu Asn Ala Thr Val  
 125 130 135  
 Arg Arg Ala Glu Leu Lys Gly Leu Lys Pro Gly Gly Ile Tyr Val  
 140 145 150  
 Val Cys Val Val Ala Ala Asn Glu Ala Gly Ala Ser Arg Val Pro  
 155 160 165  
 Gln Ala Gly Gly Glu Gly Leu Glu Gly Ala Asp Ile Pro Ala Phe  
 170 175 180  
 Gly Pro Cys Ser Arg Leu Ala Val Pro Pro Asn Pro Arg Thr Leu  
 185 190 195  
 Val His Ala Ala Val Gly Val Gly Thr Ala Leu Ala Leu Leu Ser  
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 215 220 225  
 Cys Pro Arg Arg Ala Ala Ala Arg Ala Ala Gly Ala Leu  
 230 235

<210> 272  
 <211> 2397  
 <212> DNA  
 <213> Homo sapiens

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 tgcccttggg agtaggatgt ggtgaaagga tggggcttct cccttacggg 200  
 gctcacaatg gccagagaag attccgtgaa gtgtctgcgc tgctgtctct 250  
 acgccctcaa tctgctcttt tggttaatgt ccatcagtgt gttggcagtt 300



tctgcttgga tgagggacta cctaaataat gttctcactt taactgcaga 350  
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cggatcatgat tgctgtttgc tgtttcctta tcattgtggg gatgttagga 450  
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cagaaatatg tagaaataaa aatgttgcca taaaataaca cctaagcata 1250  
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<210> 273

<211> 305

<212> PRT

<213> Homo sapiens

<400> 273

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| Met | Ala | Arg | Glu | Asp | Ser | Val | Lys | Cys | Leu | Arg | Cys | Leu | Leu | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Ala | Leu | Asn | Leu | Leu | Phe | Trp | Leu | Met | Ser | Ile | Ser | Val | Leu | Ala |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Val | Ser | Ala | Trp | Met | Arg | Asp | Tyr | Leu | Asn | Asn | Val | Leu | Thr | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Thr | Ala | Glu | Thr | Arg | Val | Glu | Glu | Ala | Val | Ile | Leu | Thr | Tyr | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Pro | Val | Val | His | Pro | Val | Met | Ile | Ala | Val | Cys | Cys | Phe | Leu | Ile |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Ile | Val | Gly | Met | Leu | Gly | Tyr | Cys | Gly | Thr | Val | Lys | Arg | Asn | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Leu | Leu | Leu | Ala | Trp | Tyr | Phe | Gly | Ser | Leu | Leu | Val | Ile | Phe | Cys |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Val | Glu | Leu | Ala | Cys | Gly | Val | Trp | Thr | Tyr | Glu | Gln | Glu | Leu | Met |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Val | Pro | Val | Gln | Trp | Ser | Asp | Met | Val | Thr | Leu | Lys | Ala | Arg | Met |  |
|     |     |     |     | 125 |     |     |     |     |     | 130 |     |     |     | 135 |  |
| Thr | Asn | Tyr | Gly | Leu | Pro | Arg | Tyr | Arg | Trp | Leu | Thr | His | Ala | Trp |  |
|     |     |     |     | 140 |     |     |     |     |     | 145 |     |     |     | 150 |  |
| Asn | Phe | Phe | Gln | Arg | Glu | Phe | Lys | Cys | Cys | Gly | Val | Val | Tyr | Phe |  |
|     |     |     |     | 155 |     |     |     |     |     | 160 |     |     |     | 165 |  |
| Thr | Asp | Trp | Leu | Glu | Met | Thr | Glu | Met | Asp | Trp | Pro | Pro | Asp | Ser |  |
|     |     |     |     | 170 |     |     |     |     |     | 175 |     |     |     | 180 |  |
| Cys | Cys | Val | Arg | Glu | Phe | Pro | Gly | Cys | Ser | Lys | Gln | Ala | His | Gln |  |
|     |     |     |     | 185 |     |     |     |     |     | 190 |     |     |     | 195 |  |
| Glu | Asp | Leu | Ser | Asp | Leu | Tyr | Gln | Glu | Gly | Cys | Gly | Lys | Lys | Met |  |
|     |     |     |     | 200 |     |     |     |     |     | 205 |     |     |     | 210 |  |
| Tyr | Ser | Phe | Leu | Arg | Gly | Thr | Lys | Gln | Leu | Gln | Val | Leu | Arg | Phe |  |
|     |     |     |     | 215 |     |     |     |     |     | 220 |     |     |     | 225 |  |
| Leu | Gly | Ile | Ser | Ile | Gly | Val | Thr | Gln | Ile | Leu | Ala | Met | Ile | Leu |  |
|     |     |     |     | 230 |     |     |     |     |     | 235 |     |     |     | 240 |  |
| Thr | Ile | Thr | Leu | Leu | Trp | Ala | Leu | Tyr | Tyr | Asp | Arg | Arg | Glu | Pro |  |
|     |     |     |     | 245 |     |     |     |     |     | 250 |     |     |     | 255 |  |
| Gly | Thr | Asp | Gln | Met | Met | Ser | Leu | Lys | Asn | Asp | Asn | Ser | Gln | His |  |
|     |     |     |     | 260 |     |     |     |     |     | 265 |     |     |     | 270 |  |
| Leu | Ser | Cys | Pro | Ser | Val | Glu | Leu | Leu | Lys | Pro | Ser | Leu | Ser | Arg |  |
|     |     |     |     | 275 |     |     |     |     |     | 280 |     |     |     | 285 |  |
| Ile | Phe | Glu | His | Thr | Ser | Met | Ala | Asn | Ser | Phe | Asn | Thr | His | Phe |  |
|     |     |     |     | 290 |     |     |     |     |     | 295 |     |     |     | 300 |  |
| Glu | Met | Glu | Glu | Leu |     |     |     |     |     |     |     |     |     |     |  |
|     |     |     |     | 305 |     |     |     |     |     |     |     |     |     |     |  |

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 <212> DNA  
 <213> Homo sapiens

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 cttgggggtga caatctcagc tccaggctac agggagaccg ggaggatcac 200  
 agagccagca tgttacagga tcctgacagt gatcaacctc tgaacagcct 250  
 cgatgtcaaa cccctgcgca aaccccgat ccccatggag accttcagaa 300



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<211> 432

<212> PRT

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Leu | Gln | Asp | Pro | Asp | Ser | Asp | Gln | Pro | Leu | Asn | Ser | Leu | Asp | 1   | 5   | 10  | 15 |
| Val | Lys | Pro | Leu | Arg | Lys | Pro | Arg | Ile | Pro | Met | Glu | Thr | Phe | Arg | 20  | 25  | 30  |    |
| Lys | Val | Gly | Ile | Pro | Ile | Ile | Ile | Ala | Leu | Leu | Ser | Leu | Ala | Ser | 35  | 40  | 45  |    |
| Ile | Ile | Ile | Val | Val | Val | Leu | Ile | Lys | Val | Ile | Leu | Asp | Lys | Tyr | 50  | 55  | 60  |    |
| Tyr | Phe | Leu | Cys | Gly | Gln | Pro | Leu | His | Phe | Ile | Pro | Arg | Lys | Gln | 65  | 70  | 75  |    |
| Leu | Cys | Asp | Gly | Glu | Leu | Asp | Cys | Pro | Leu | Gly | Glu | Asp | Glu | Glu | 80  | 85  | 90  |    |
| His | Cys | Val | Lys | Ser | Phe | Pro | Glu | Gly | Pro | Ala | Val | Ala | Val | Arg | 95  | 100 | 105 |    |
| Leu | Ser | Lys | Asp | Arg | Ser | Thr | Leu | Gln | Val | Leu | Asp | Ser | Ala | Thr | 110 | 115 | 120 |    |
| Gly | Asn | Trp | Phe | Ser | Ala | Cys | Phe | Asp | Asn | Phe | Thr | Glu | Ala | Leu | 125 | 130 | 135 |    |
| Ala | Glu | Thr | Ala | Cys | Arg | Gln | Met | Gly | Tyr | Ser | Arg | Ala | Val | Glu | 140 | 145 | 150 |    |
| Ile | Gly | Pro | Asp | Gln | Asp | Leu | Asp | Val | Val | Glu | Ile | Thr | Glu | Asn | 155 | 160 | 165 |    |
| Ser | Gln | Glu | Leu | Arg | Met | Arg | Asn | Ser | Ser | Gly | Pro | Cys | Leu | Ser | 170 | 175 | 180 |    |



|                 |                     |                     |     |
|-----------------|---------------------|---------------------|-----|
| Gly Ser Leu Val | Ser Leu His Cys Leu | Ala Cys Gly Lys Ser | Leu |
|                 | 185                 | 190                 | 195 |
| Lys Thr Pro Arg | Val Val Gly Gly Glu | Glu Ala Ser Val Asp | Ser |
|                 | 200                 | 205                 | 210 |
| Trp Pro Trp Gln | Val Ser Ile Gln Tyr | Asp Lys Gln His Val | Cys |
|                 | 215                 | 220                 | 225 |
| Gly Gly Ser Ile | Leu Asp Pro His Trp | Val Leu Thr Ala Ala | His |
|                 | 230                 | 235                 | 240 |
| Cys Phe Arg Lys | His Thr Asp Val Phe | Asn Trp Lys Val Arg | Ala |
|                 | 245                 | 250                 | 255 |
| Gly Ser Asp Lys | Leu Gly Ser Phe Pro | Ser Leu Ala Val Ala | Lys |
|                 | 260                 | 265                 | 270 |
| Ile Ile Ile Ile | Glu Phe Asn Pro Met | Tyr Pro Lys Asp Asn | Asp |
|                 | 275                 | 280                 | 285 |
| Ile Ala Leu Met | Lys Leu Gln Phe Pro | Leu Thr Phe Ser Gly | Thr |
|                 | 290                 | 295                 | 300 |
| Val Arg Pro Ile | Cys Leu Pro Phe Phe | Asp Glu Glu Leu Thr | Pro |
|                 | 305                 | 310                 | 315 |
| Ala Thr Pro Leu | Trp Ile Ile Gly Trp | Gly Phe Thr Lys Gln | Asn |
|                 | 320                 | 325                 | 330 |
| Gly Gly Lys Met | Ser Asp Ile Leu Leu | Gln Ala Ser Val Gln | Val |
|                 | 335                 | 340                 | 345 |
| Ile Asp Ser Thr | Arg Cys Asn Ala Asp | Asp Ala Tyr Gln Gly | Glu |
|                 | 350                 | 355                 | 360 |
| Val Thr Glu Lys | Met Met Cys Ala Gly | Ile Pro Glu Gly Gly | Val |
|                 | 365                 | 370                 | 375 |
| Asp Thr Cys Gln | Gly Asp Ser Gly Gly | Pro Leu Met Tyr Gln | Ser |
|                 | 380                 | 385                 | 390 |
| Asp Gln Trp His | Val Val Gly Ile Val | Ser Trp Gly Tyr Gly | Cys |
|                 | 395                 | 400                 | 405 |
| Gly Gly Pro Ser | Thr Pro Gly Val Tyr | Thr Lys Val Ser Ala | Tyr |
|                 | 410                 | 415                 | 420 |
| Leu Asn Trp Ile | Tyr Asn Val Trp Lys | Ala Glu Leu         |     |
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&lt;211&gt; 3143

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens



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| acgtagggca | cttagcttct  | tccaccagaa  | gggcctccag  | gattttgaca | 300  |
| ctctgctcct | gagtggatgat | ggaaatactc  | tctacgtggg  | ggctcgagaa | 350  |
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|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 277 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met       | Ala | Leu | Pro | Ala | Leu | Gly | Leu | Asp | Pro | Trp | Ser | Leu | Leu | Gly |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu       | Phe | Leu | Phe | Gln | Leu | Leu | Gln | Leu | Leu | Leu | Pro | Thr | Thr | Thr |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ala       | Gly | Gly | Gly | Gly | Gln | Gly | Pro | Met | Pro | Arg | Val | Arg | Tyr | Tyr |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Ala       | Gly | Asp | Glu | Arg | Arg | Ala | Leu | Ser | Phe | Phe | His | Gln | Lys | Gly |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Leu       | Gln | Asp | Phe | Asp | Thr | Leu | Leu | Leu | Ser | Gly | Asp | Gly | Asn | Thr |
|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Leu       | Tyr | Val | Gly | Ala | Arg | Glu | Ala | Ile | Leu | Ala | Leu | Asp | Ile | Gln |
|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Asp       | Pro | Gly | Val | Pro | Arg | Leu | Lys | Asn | Met | Ile | Pro | Trp | Pro | Ala |
|           |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ser       | Asp | Arg | Lys | Lys | Ser | Glu | Cys | Ala | Phe | Lys | Lys | Lys | Ser | Asn |
|           |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Glu       | Thr | Gln | Cys | Phe | Asn | Phe | Ile | Arg | Val | Leu | Val | Ser | Tyr | Asn |
|           |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Val       | Thr | His | Leu | Tyr | Thr | Cys | Gly | Thr | Phe | Ala | Phe | Ser | Pro | Ala |
|           |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Cys       | Thr | Phe | Ile | Glu | Leu | Gln | Asp | Ser | Tyr | Leu | Leu | Pro | Ile | Ser |
|           |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Glu       | Asp | Lys | Val | Met | Glu | Gly | Lys | Gly | Gln | Ser | Pro | Phe | Asp | Pro |
|           |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Ala       | His | Lys | His | Thr | Ala | Val | Leu | Val | Asp | Gly | Met | Leu | Tyr | Ser |
|           |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |



|                 |                     |                         |
|-----------------|---------------------|-------------------------|
| Gly Thr Met Asn | Asn Phe Leu Gly Ser | Glu Pro Ile Leu Met Arg |
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| Thr Leu Gly Ser | Gln Pro Val Leu Lys | Thr Asp Asn Phe Leu Arg |
| 215             |                     | 220 225                 |
| Trp Leu His His | Asp Ala Ser Phe Val | Ala Ala Ile Pro Ser Thr |
| 230             |                     | 235 240                 |
| Gln Val Val Tyr | Phe Phe Phe Glu Glu | Thr Ala Ser Glu Phe Asp |
| 245             |                     | 250 255                 |
| Phe Phe Glu Arg | Leu His Thr Ser Arg | Val Ala Arg Val Cys Lys |
| 260             |                     | 265 270                 |
| Asn Asp Val Gly | Gly Glu Lys Leu Leu | Gln Lys Lys Trp Thr Thr |
| 275             |                     | 280 285                 |
| Phe Leu Lys Ala | Gln Leu Leu Cys Thr | Gln Pro Gly Gln Leu Pro |
| 290             |                     | 295 300                 |
| Phe Asn Val Ile | Arg His Ala Val Leu | Leu Pro Ala Asp Ser Pro |
| 305             |                     | 310 315                 |
| Thr Ala Pro His | Ile Tyr Ala Val Phe | Thr Ser Gln Trp Gln Val |
| 320             |                     | 325 330                 |
| Gly Gly Thr Arg | Ser Ser Ala Val Cys | Ala Phe Ser Leu Leu Asp |
| 335             |                     | 340 345                 |
| Ile Glu Arg Val | Phe Lys Gly Lys Tyr | Lys Glu Leu Asn Lys Glu |
| 350             |                     | 355 360                 |
| Thr Ser Arg Trp | Thr Thr Tyr Arg Gly | Pro Glu Thr Asn Pro Arg |
| 365             |                     | 370 375                 |
| Pro Gly Ser Cys | Ser Val Gly Pro Ser | Ser Asp Lys Ala Leu Thr |
| 380             |                     | 385 390                 |
| Phe Met Lys Asp | His Phe Leu Met Asp | Glu Gln Val Val Gly Thr |
| 395             |                     | 400 405                 |
| Pro Leu Leu Val | Lys Ser Gly Val Glu | Tyr Thr Arg Leu Ala Val |
| 410             |                     | 415 420                 |
| Glu Thr Ala Gln | Gly Leu Asp Gly His | Ser His Leu Val Met Tyr |
| 425             |                     | 430 435                 |
| Leu Gly Thr Thr | Thr Gly Ser Leu His | Lys Ala Val Val Ser Gly |
| 440             |                     | 445 450                 |
| Asp Ser Ser Ala | His Leu Val Glu Glu | Ile Gln Leu Phe Pro Asp |
| 455             |                     | 460 465                 |
| Pro Glu Pro Val | Arg Asn Leu Gln Leu | Ala Pro Thr Gln Gly Ala |
| 470             |                     | 475 480                 |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Val | Phe | Val | Gly | Phe<br>485 | Ser | Gly | Gly | Val | Trp<br>490 | Arg | Val | Pro | Arg | Ala<br>495 |
| Asn | Cys | Ser | Val | Tyr<br>500 | Glu | Ser | Cys | Val | Asp<br>505 | Cys | Val | Leu | Ala | Arg<br>510 |
| Asp | Pro | His | Cys | Ala<br>515 | Trp | Asp | Pro | Glu | Ser<br>520 | Arg | Thr | Cys | Cys | Leu<br>525 |
| Leu | Ser | Ala | Pro | Asn<br>530 | Leu | Asn | Ser | Trp | Lys<br>535 | Gln | Asp | Met | Glu | Arg<br>540 |
| Gly | Asn | Pro | Glu | Trp<br>545 | Ala | Cys | Ala | Ser | Gly<br>550 | Pro | Met | Ser | Arg | Ser<br>555 |
| Leu | Arg | Pro | Gln | Ser<br>560 | Arg | Pro | Gln | Ile | Ile<br>565 | Lys | Glu | Val | Leu | Ala<br>570 |
| Val | Pro | Asn | Ser | Ile<br>575 | Leu | Glu | Leu | Pro | Cys<br>580 | Pro | His | Leu | Ser | Ala<br>585 |
| Leu | Ala | Ser | Tyr | Tyr<br>590 | Trp | Ser | His | Gly | Pro<br>595 | Ala | Ala | Val | Pro | Glu<br>600 |
| Ala | Ser | Ser | Thr | Val<br>605 | Tyr | Asn | Gly | Ser | Leu<br>610 | Leu | Leu | Ile | Val | Gln<br>615 |
| Asp | Gly | Val | Gly | Gly<br>620 | Leu | Tyr | Gln | Cys | Trp<br>625 | Ala | Thr | Glu | Asn | Gly<br>630 |
| Phe | Ser | Tyr | Pro | Val<br>635 | Ile | Ser | Tyr | Trp | Val<br>640 | Asp | Ser | Gln | Asp | Gln<br>645 |
| Thr | Leu | Ala | Leu | Asp<br>650 | Pro | Glu | Leu | Ala | Gly<br>655 | Ile | Pro | Arg | Glu | His<br>660 |
| Val | Lys | Val | Pro | Leu<br>665 | Thr | Arg | Val | Ser | Gly<br>670 | Gly | Ala | Ala | Leu | Ala<br>675 |
| Ala | Gln | Gln | Ser | Tyr<br>680 | Trp | Pro | His | Phe | Val<br>685 | Thr | Val | Thr | Val | Leu<br>690 |
| Phe | Ala | Leu | Val | Leu<br>695 | Ser | Gly | Ala | Leu | Ile<br>700 | Ile | Leu | Val | Ala | Ser<br>705 |
| Pro | Leu | Arg | Ala | Leu<br>710 | Arg | Ala | Arg | Gly | Lys<br>715 | Val | Gln | Gly | Cys | Glu<br>720 |
| Thr | Leu | Arg | Pro | Gly<br>725 | Glu | Lys | Ala | Pro | Leu<br>730 | Ser | Arg | Glu | Gln | His<br>735 |
| Leu | Gln | Ser | Pro | Lys<br>740 | Glu | Cys | Arg | Thr | Ser<br>745 | Ala | Ser | Asp | Val | Asp<br>750 |
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 ggaagacaag agatacaagt ccgcggcagt ggctgccagt gtcacctgc 1400  
 gctcccaccc gctcagcccc acacagcggc tgggtgggctg gattgaccac 1450  
 gtcctccaga cagggggcgc gacgcacctc aagccctatg tctttcagca 1500  
 gccctggcat gagcagtacc tgttcgacgt ttttgtgttt ctgctggggc 1550  
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 cccactagtt ctggcagccc cattctctag tccttctagt tatctcctgt 1750  
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 attttgctac aaattcatcc ttactagctc ctgcctgcta gcagaaatct 1850



ttccagtcct cttgtcctcc tttgtttgcc atcagcaagg gctatgctgt 1900  
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gtccctgtct ctggtgcccc cagtgaagctc cttcttggct gagcaggcat 2250  
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tctctcccca acctcactaa 2320

<210> 282  
<211> 523  
<212> PRT  
<213> Homo sapiens

<400> 282  
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Gly Val Leu Leu Ser Glu Ala Ala Lys Ile Leu Thr Ile Ser Thr  
20 25 30  
Val Gly Gly Ser His Tyr Leu Leu Met Asp Arg Val Ser Gln Ile  
35 40 45  
Leu Gln Asp His Gly His Asn Val Thr Met Leu Asn His Lys Arg  
50 55 60  
Gly Pro Phe Met Pro Asp Phe Lys Lys Glu Glu Lys Ser Tyr Gln  
65 70 75  
Val Ile Ser Trp Leu Ala Pro Glu Asp His Gln Arg Glu Phe Lys  
80 85 90  
Lys Ser Phe Asp Phe Phe Leu Glu Glu Thr Leu Gly Gly Arg Gly  
95 100 105  
Lys Phe Glu Asn Leu Leu Asn Val Leu Glu Tyr Leu Ala Leu Gln  
110 115 120  
Cys Ser His Phe Leu Asn Arg Lys Asp Ile Met Asp Ser Leu Lys  
125 130 135  
Asn Glu Asn Phe Asp Met Val Ile Val Glu Thr Phe Asp Tyr Cys  
140 145 150  
Pro Phe Leu Ile Ala Glu Lys Leu Gly Lys Pro Phe Val Ala Ile



|                                     |                     |     |
|-------------------------------------|---------------------|-----|
| 155                                 | 160                 | 165 |
| Leu Ser Thr Ser Phe Gly Ser Leu Glu | Phe Gly Leu Pro Ile | Pro |
| 170                                 | 175                 | 180 |
| Leu Ser Tyr Val Pro Val Phe Arg Ser | Leu Leu Thr Asp His | Met |
| 185                                 | 190                 | 195 |
| Asp Phe Trp Gly Arg Val Lys Asn Phe | Leu Met Phe Phe Ser | Phe |
| 200                                 | 205                 | 210 |
| Cys Arg Arg Gln Gln His Met Gln Ser | Thr Phe Asp Asn Thr | Ile |
| 215                                 | 220                 | 225 |
| Lys Glu His Phe Thr Glu Gly Ser Arg | Pro Val Leu Ser His | Leu |
| 230                                 | 235                 | 240 |
| Leu Leu Lys Ala Glu Leu Trp Phe Ile | Asn Ser Asp Phe Ala | Phe |
| 245                                 | 250                 | 255 |
| Asp Phe Ala Arg Pro Leu Leu Pro Asn | Thr Val Tyr Val Gly | Gly |
| 260                                 | 265                 | 270 |
| Leu Met Glu Lys Pro Ile Lys Pro Val | Pro Gln Asp Leu Glu | Asn |
| 275                                 | 280                 | 285 |
| Phe Ile Ala Lys Phe Gly Asp Ser Gly | Phe Val Leu Val Thr | Leu |
| 290                                 | 295                 | 300 |
| Gly Ser Met Val Asn Thr Cys Gln Asn | Pro Glu Ile Phe Lys | Glu |
| 305                                 | 310                 | 315 |
| Met Asn Asn Ala Phe Ala His Leu Pro | Gln Gly Val Ile Trp | Lys |
| 320                                 | 325                 | 330 |
| Cys Gln Cys Ser His Trp Pro Lys Asp | Val His Leu Ala Ala | Asn |
| 335                                 | 340                 | 345 |
| Val Lys Ile Val Asp Trp Leu Pro Gln | Ser Asp Leu Leu Ala | His |
| 350                                 | 355                 | 360 |
| Pro Ser Ile Arg Leu Phe Val Thr His | Gly Gly Gln Asn Ser | Ile |
| 365                                 | 370                 | 375 |
| Met Glu Ala Ile Gln His Gly Val Pro | Met Val Gly Ile Pro | Leu |
| 380                                 | 385                 | 390 |
| Phe Gly Asp Gln Pro Glu Asn Met Val | Arg Val Glu Ala Lys | Lys |
| 395                                 | 400                 | 405 |
| Phe Gly Val Ser Ile Gln Leu Lys Lys | Leu Lys Ala Glu Thr | Leu |
| 410                                 | 415                 | 420 |
| Ala Leu Lys Met Lys Gln Ile Met Glu | Asp Lys Arg Tyr Lys | Ser |
| 425                                 | 430                 | 435 |
| Ala Ala Val Ala Ala Ser Val Ile Leu | Arg Ser His Pro Leu | Ser |



|   |     |     |
|---|-----|-----|
| 440   | 445 | 450 |
| Pro Thr Gln Arg Leu Val Gly Trp Ile Asp His Val Leu Gln Thr |     |     |
| 455   | 460 | 465 |
| Gly Gly Ala Thr His Leu Lys Pro Tyr Val Phe Gln Gln Pro Trp |     |     |
| 470   | 475 | 480 |
| His Glu Gln Tyr Leu Phe Asp Val Phe Val Phe Leu Leu Gly Leu |     |     |
| 485   | 490 | 495 |
| Thr Leu Gly Thr Leu Trp Leu Cys Gly Lys Leu Leu Gly Met Ala |     |     |
| 500   | 505 | 510 |
| Val Trp Trp Leu Arg Gly Ala Arg Lys Val Lys Glu Thr         |     |     |
| 515   | 520 |     |

<210> 283  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 283  
 tgcctttgct cacctacccc aagg 24

<210> 284  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 284  
 tcaggctggt ctccaaagag aggg 24

<210> 285  
 <211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 285  
 cccaaagatg tccacctggc tgcaaattgtg aaaattgtgg actgg 45

<210> 286  
 <211> 2340  
 <212> DNA  
 <213> Homo sapiens

<400> 286  
 gggctgttga tttgtggggg attttgaaga gaggaggaat aggaggaagg 50



|             |             |             |             |            |      |
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| cccgctcacac | acacatacca  | tgtttctccat | ccccccaggt  | ccagccctca | 150  |
| gtgctgtccc  | atccagcagg  | gctaccctga  | agctctggct  | gcagccctcc | 200  |
| cgtccagtgg  | gcaggcggct  | tcatccctcc  | tttctctccc  | aaagcccaac | 250  |
| tgctgtcact  | gcatgctctg  | ccaaggagga  | gggaactgca  | gtgacagcag | 300  |
| gagtaagagt  | gggaggcagg  | acagagctgg  | gacacaggta  | tggagagggg | 350  |
| gttcagcgag  | cctagagagg  | gcagactatc  | aggggtgccgg | cggtgagaat | 400  |
| ccagggagag  | gagcggaaac  | agaagagggg  | cagaagaccg  | gggcacttgt | 450  |
| gggttgacaga | gcccctcagc  | catgttgggg  | gccaagccac  | actggctacc | 500  |
| aggtccccta  | cacagtcccg  | ggctgccctt  | ggttctgggtg | cttctggccc | 550  |
| tggggggccgg | gtggggcccag | gaggggtcag  | agcccgctct  | gctggagggg | 600  |
| gagtgcctgg  | tggctctgtga | gcctggccga  | gctgctgcag  | ggggggcccg | 650  |
| gggagcagcc  | ctgggagagg  | caccccctgg  | gcgagtggca  | tttgctgcgg | 700  |
| tccgaagcca  | ccaccatgag  | ccagcagggg  | aaaccggcaa  | tggcaccagt | 750  |
| ggggccatct  | acttcgacca  | ggtcctgggtg | aacgagggcg  | gtggctttga | 800  |
| ccgggcctct  | ggctccttcg  | tagcccctgt  | ccgggggtgtc | tacagcttcc | 850  |
| ggttccatgt  | ggtgaagggtg | tacaaccgcc  | aaactgtcca  | ggtgagcctg | 900  |
| atgctgaaca  | cgtggcctgt  | catctcagcc  | tttgccaatg  | atcctgacgt | 950  |
| gacccgggag  | gcagccacca  | gctctgtgct  | actgcccttg  | gaccctgggg | 1000 |
| accgagtgtc  | tctgcgcctg  | cgtcggggga  | atctactggg  | tggttggaaa | 1050 |
| tactcaagtt  | tctctggctt  | cctcatcttc  | cctctctgag  | gacccaagtc | 1100 |
| tttcaagcac  | aagaatccag  | cccctgacaa  | ctttcttctg  | ccctctcttg | 1150 |
| ccccagaaac  | agcagaggca  | ggagagagac  | tccctctggc  | tcctatccca | 1200 |
| cctctttgca  | tgggaccctg  | tgccaaacac  | ccaagtttaa  | gagaagagta | 1250 |
| gagctgtggc  | atctccagac  | caggcctttc  | caccaccca   | ccccagtta  | 1300 |
| ccctcccagc  | cacctgctgc  | atctgttctt  | gcctgcagcc  | ctaggatcag | 1350 |
| ggcaaggttt  | ggcaagaagg  | aagatctgca  | ctactttgcg  | gcctctgctc | 1400 |
| ctccggttcc  | cccaccccag  | cttctgtctc  | aatgctgata  | agggacaggt | 1450 |



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 agaggaaaat aaatatcaaa ctgtatacta aaattaaaaa 2340

<210> 287

<211> 205

<212> PRT

<213> Homo sapiens

<400> 287

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Leu | Gly | Ala | Lys | Pro | His | Trp | Leu | Pro | Gly | Pro | Leu | His | Ser |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |     |
| Pro | Gly | Leu | Pro | Leu | Val | Leu | Val | Leu | Leu | Ala | Leu | Gly | Ala | Gly |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     | 30  |     |
| Trp | Ala | Gln | Glu | Gly | Ser | Glu | Pro | Val | Leu | Leu | Glu | Gly | Glu | Cys |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     | 45  |     |
| Leu | Val | Val | Cys | Glu | Pro | Gly | Arg | Ala | Ala | Ala | Gly | Gly | Pro | Gly |
|     |     |     |     | 50  |     |     |     | 55  |     |     |     |     | 60  |     |
| Gly | Ala | Ala | Leu | Gly | Glu | Ala | Pro | Pro | Gly | Arg | Val | Ala | Phe | Ala |
|     |     |     |     | 65  |     |     |     | 70  |     |     |     |     | 75  |     |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Ala | Val | Arg | Ser | His<br>80  | His | His | Glu | Pro | Ala<br>85  | Gly | Glu | Thr | Gly | Asn<br>90  |
| Gly | Thr | Ser | Gly | Ala<br>95  | Ile | Tyr | Phe | Asp | Gln<br>100 | Val | Leu | Val | Asn | Glu<br>105 |
| Gly | Gly | Gly | Phe | Asp<br>110 | Arg | Ala | Ser | Gly | Ser<br>115 | Phe | Val | Ala | Pro | Val<br>120 |
| Arg | Gly | Val | Tyr | Ser<br>125 | Phe | Arg | Phe | His | Val<br>130 | Val | Lys | Val | Tyr | Asn<br>135 |
| Arg | Gln | Thr | Val | Gln<br>140 | Val | Ser | Leu | Met | Leu<br>145 | Asn | Thr | Trp | Pro | Val<br>150 |
| Ile | Ser | Ala | Phe | Ala<br>155 | Asn | Asp | Pro | Asp | Val<br>160 | Thr | Arg | Glu | Ala | Ala<br>165 |
| Thr | Ser | Ser | Val | Leu<br>170 | Leu | Pro | Leu | Asp | Pro<br>175 | Gly | Asp | Arg | Val | Ser<br>180 |
| Leu | Arg | Leu | Arg | Arg<br>185 | Gly | Asn | Leu | Leu | Gly<br>190 | Gly | Trp | Lys | Tyr | Ser<br>195 |
| Ser | Phe | Ser | Gly | Phe<br>200 | Leu | Ile | Phe | Pro | Leu<br>205 |     |     |     |     |            |

<210> 288

<211> 24

<212> DNA

### <213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 288

aggcagccac cagctctgtg ctac 24

<210> 289

<211> 27

<212> DNA

### <213> Artificial Sequence

$\langle 220 \rangle$

<223> Synthetic oligonucleotide probe

<400> 289

cagagaggga agatgaggaa gccagag 27

<210> 290

<211> 42

<212> DNA

### <213> Artificial Sequence

 $\langle 220 \rangle$ 

<223> Synthetic oligonucleotide probe



<400> 290  
ctgtgctact gcccttggac cctggggacc gagtgtctct gc 42

<210> 291  
<211> 1570  
<212> DNA  
<213> Homo sapiens

<400> 291  
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tagccgcca gcctcgacgc cgtcccggga cccctgtgct ctgcgcgaag 100  
ccctggcccc gggggccggg gcatgggcca ggggcgcggg gtgaagcggc 150  
ttcccgcggg gccgtgactg ggcgggcttc agccatgaag accctcatag 200  
ccgcctactc cggggctcctg cgcggcgagc gtcaggccga ggctgaccgg 250  
agccagcgct ctcacggagg acctgcgctg tcgcgcgagg ggtctgggag 300  
atggggcact ggatccagca tcctctccgc cctccaggac ctcttctctg 350  
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gacacctggg ggctgtgtcc ctactccaag cccatcacca ctgttgtggg 1200



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 agccagcctt cggggccaat tccctggagg aaccagctgc aaatcacttt 1400  
 tttgctctgt aaatttggaa gtgtcatggg tgtctgtggg ttatttataa 1450  
 gaaattataa caattttgct aaacaaaaaa aaaaaaaaaa aaaaaaaaaa 1500  
 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 1550  
 aaaaaaaaaa aaaaaaaaaa 1570

<210> 292  
 <211> 388  
 <212> PRT  
 <213> Homo sapiens

<400> 292  
 Met Lys Thr Leu Ile Ala Ala Tyr Ser Gly Val Leu Arg Gly Glu  
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 Arg Gln Ala Glu Ala Asp Arg Ser Gln Arg Ser His Gly Gly Pro  
 20 25 30  
 Ala Leu Ser Arg Glu Gly Ser Gly Arg Trp Gly Thr Gly Ser Ser  
 35 40 45  
 Ile Leu Ser Ala Leu Gln Asp Leu Phe Ser Val Thr Trp Leu Asn  
 50 55 60  
 Arg Ser Lys Val Glu Lys Gln Leu Gln Val Ile Ser Val Leu Gln  
 65 70 75  
 Trp Val Leu Ser Phe Leu Val Leu Gly Val Ala Cys Ser Ala Ile  
 80 85 90  
 Leu Met Tyr Ile Phe Cys Thr Asp Cys Trp Leu Ile Ala Val Leu  
 95 100 105  
 Tyr Phe Thr Trp Leu Val Phe Asp Trp Asn Thr Pro Lys Lys Gly  
 110 115 120  
 Gly Arg Arg Ser Gln Trp Val Arg Asn Trp Ala Val Trp Arg Tyr  
 125 130 135  
 Phe Arg Asp Tyr Phe Pro Ile Gln Leu Val Lys Thr His Asn Leu  
 140 145 150  
 Leu Thr Thr Arg Asn Tyr Ile Phe Gly Tyr His Pro His Gly Ile  
 155 160 165  
 Met Gly Leu Gly Ala Phe Cys Asn Phe Ser Thr Glu Ala Thr Glu  
 170 175 180



|   |     |     |     |
|---|-----|-----|-----|
| Val Ser Lys Lys Phe Pro Gly Ile Arg Pro Tyr Leu Ala Thr Leu | 185 | 190 | 195 |
| Ala Gly Asn Phe Arg Met Pro Val Leu Arg Glu Tyr Leu Met Ser | 200 | 205 | 210 |
| Gly Gly Ile Cys Pro Val Ser Arg Asp Thr Ile Asp Tyr Leu Leu | 215 | 220 | 225 |
| Ser Lys Asn Gly Ser Gly Asn Ala Ile Ile Ile Val Val Gly Gly | 230 | 235 | 240 |
| Ala Ala Glu Ser Leu Ser Ser Met Pro Gly Lys Asn Ala Val Thr | 245 | 250 | 255 |
| Leu Arg Asn Arg Lys Gly Phe Val Lys Leu Ala Leu Arg His Gly | 260 | 265 | 270 |
| Ala Asp Leu Val Pro Ile Tyr Ser Phe Gly Glu Asn Glu Val Tyr | 275 | 280 | 285 |
| Lys Gln Val Ile Phe Glu Glu Gly Ser Trp Gly Arg Trp Val Gln | 290 | 295 | 300 |
| Lys Lys Phe Gln Lys Tyr Ile Gly Phe Ala Pro Cys Ile Phe His | 305 | 310 | 315 |
| Gly Arg Gly Leu Phe Ser Ser Asp Thr Trp Gly Leu Val Pro Tyr | 320 | 325 | 330 |
| Ser Lys Pro Ile Thr Thr Val Val Gly Glu Pro Ile Thr Ile Pro | 335 | 340 | 345 |
| Lys Leu Glu His Pro Thr Gln Gln Asp Ile Asp Leu Tyr His Thr | 350 | 355 | 360 |
| Met Tyr Met Glu Ala Leu Val Lys Leu Phe Asp Lys His Lys Thr | 365 | 370 | 375 |
| Lys Phe Gly Leu Pro Glu Thr Glu Val Leu Glu Val Asn         | 380 | 385 |     |

<210> 293

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 293

gctgacctgg ttcccatcta ctcc 24

<210> 294

<211> 24

<212> DNA



<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 294

cccacagaca cccatgacac ttcc 24

<210> 295

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 295

aagaatgaat tgtacaaagc aggtgatctt cgaggagggc tcctggggcc 50

<210> 296

<211> 3060

<212> DNA

<213> Homo sapiens

<400> 296

gggcggcggg atggggggcg ggggcggcgg gcgccgcact cgctgaggcc 50

ccgacgcagg gccggggccgg gcccagggcc gaggagcgcg gcggccagag 100

cgggggccgcg gaggcgacgc cggggacgcc cgcgcgacga gcagggtggcg 150

gcgggtgcag gcttgtccag ccggaagccc tgagggcagc tgttcccact 200

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cagctctacc gccgcctcaa ctgccgcctc gcctactcac tctggagcca 450

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cggaccaggc cacggtagag cgctttggga aggagcacgc agtcatcatc 550

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tgcaagcgga agtgggagga ggaccgggac accgtggctg aagggtgag 750

gcgcctgtcg gactaccccg agtacatgtg gtttctcctg tactgagag 800



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|------------|-------------|------------|-------------|-------------|------|
| ggacgcgctt | cacggagacc  | aagcaccgcg | ttagcatgga  | ggtggcggct  | 850  |
| gctaaggggc | ttcctgtcct  | caagtaccac | ctgctgccgc  | ggaccaaggg  | 900  |
| cttcaccacc | gcagtcaagt  | gcctccgggg | gacagtcgca  | gctgtctatg  | 950  |
| atgtaaccct | gaacttcaga  | ggaaacaaga | acccgtccct  | gctggggatc  | 1000 |
| ctctacggga | agaagtacga  | ggcggacatg | tgcgtgagga  | gatttcctct  | 1050 |
| ggaagacatc | ccgctggatg  | aaaaggaagc | agctcagtgg  | cttcataaac  | 1100 |
| tgtaccagga | gaaggacgcg  | ctccaggaga | tatataatca  | gaagggcatg  | 1150 |
| tttccagggg | agcagtttaa  | gcctgcccgg | aggccgtgga  | ccctcctgaa  | 1200 |
| cttcctgtcc | tgggccacca  | ttctcctgtc | tcccctcttc  | agttttgtct  | 1250 |
| tgggcgtctt | tgccagcggg  | tcacctctcc | tgatcctgac  | tttcttgggg  | 1300 |
| tttgtgggag | cagcttcctt  | tggagttcgc | agactgatag  | gagaatcgct  | 1350 |
| tgaacctggg | aggtggagat  | tgcagtgagc | tgagatggca  | tcactgtact  | 1400 |
| ccagcctagg | caacagagca  | agactcagtc | tcaaaaaaaaa | aaaaaaaaaca | 1450 |
| aaaaacccca | gaaattcttg  | agttgaactg | tgtagttact  | gacatgaaaa  | 1500 |
| attcactaga | ggctgaacag  | cagatttgag | caggcagaaa  | aaaatcagca  | 1550 |
| agcttgaaga | tggtagcttg  | agatttttca | ggctaatagaa | aaaagaatga  | 1600 |
| aggaaaatta | acagcctcag  | agacccatgg | tgcaccgtca  | cacaaatcaa  | 1650 |
| catatgcatg | atgagagtcc  | cagaaggaga | ggagagaaaag | ggtcagaaaag | 1700 |
| aatggccaca | agctgatgaa  | aaacagtaac | ctaccacttc  | aggaagctca  | 1750 |
| gtgaactcca | atgaggatga  | atatcagaga | tccacaccta  | gatatttcat  | 1800 |
| aatcaaagtg | tcaaatagaca | aagaatcttg | aaagcagcaa  | gagatgagca  | 1850 |
| acttatcttg | ttcaaaggat  | ctttgatcag | attaacagct  | catttctcct  | 1900 |
| cagaaatcat | gggagccagg  | agatagtggg | atgaacactg  | ttgaaggcaa  | 1950 |
| aaccttcaac | tgtaattatt  | ggacttttga | gtcttagatg  | gtcctgacct  | 2000 |
| ctttgtcttc | agggacagtt  | tttcaattta | atccctaata  | acaattagtc  | 2050 |
| aagcttcctt | gacctgtagg  | aaggcctgtc | tttaggccgg  | gcacagtggc  | 2100 |
| ttacacctgt | aatcccagca  | ctttgggagg | cccagacggg  | tggatcattt  | 2150 |
| ggggtcaggc | tgatctcaaa  | ctcctgagtt | cagggtgatct | gccgcctca   | 2200 |
| gcctcccaaa | gtgtttgtgat | tgcaggcgtg | agccactgcg  | cctggccgga  | 2250 |



|             |             |            |            |             |      |
|-------------|-------------|------------|------------|-------------|------|
| atttcttttt  | aaggctgaat  | gatgggggcc | aggcacgatg | gtcacgcct   | 2300 |
| gtgatcccaa  | gtagcttgga  | ttgtaaacad | gcaccaccat | gcctggctaa  | 2350 |
| tttttgtatt  | tttagtagag  | acgtgttagc | caggctggtc | tcgatctcct  | 2400 |
| gacctcaagt  | gaccacctgc  | ctcagcctcc | caaagtactg | ggattacagg  | 2450 |
| cgtgagccac  | tgtgcctggc  | cttgagcatc | ttgtgatgtg | cttattggcc  | 2500 |
| atttgtatat  | cttctatctt  | ctttggggaa | atgtctgttc | aagtcctttg  | 2550 |
| cctttttaaa  | tttttattat  | ttatttattt | atttattttg | agacagggtc  | 2600 |
| ttgttctgtt  | gcccaggctg  | gagtacagtg | gcacagtctt | ggctcactgc  | 2650 |
| agcctcgacc  | tcctgggctg  | cagtgatect | cccacctcag | cctcccttgt  | 2700 |
| agctgtattt  | ttttgtattt  | tgtattttgt | agctgtagtt | tttgtatttt  | 2750 |
| ttgtggagac  | agcatttcac  | catgatgcc  | aggctggctc | tgaactcctg  | 2800 |
| agctcaagtg  | atctgcctgc  | ttcagcctcc | caaagtgctg | ggattacaga  | 2850 |
| catgagccac  | tgcacctggc  | aaactcccaa | aattcaacac | acacacacaa  | 2900 |
| aaaaccacct  | gattcaaaaat | gggcagaggg | gccgggtgtg | gccccaaacta | 2950 |
| ccaggggagac | tgaagtggga  | ggatcgcttg | ggcatgagaa | gtcgaggctg  | 3000 |
| cagtgagtcg  | aggttgtgcg  | actgcattcc | agcctggaca | acagagtgag  | 3050 |
| accctgtctc  | 3060        |            |            |             |      |

<210> 297

<211> 368

<212> PRT

<213> Homo sapiens

<400> 297

Met Gly Leu Leu Ala Phe Leu Lys Thr Gln Phe Val Leu His Leu  
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Leu Val Gly Phe Val Phe Val Val Ser Gly Leu Val Ile Asn Phe  
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Val Gln Leu Cys Thr Leu Ala Leu Trp Pro Val Ser Lys Gln Leu  
35 40 45

Tyr Arg Arg Leu Asn Cys Arg Leu Ala Tyr Ser Leu Trp Ser Gln  
50 55 60

Leu Val Met Leu Leu Glu Trp Trp Ser Cys Thr Glu Cys Thr Leu  
65 70 75

Phe Thr Asp Gln Ala Thr Val Glu Arg Phe Gly Lys Glu His Ala



| 80  |     |     |     |     | 85  |     |     |     |     | 90  |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Ile | Ile | Leu | Asn | His | Asn | Phe | Glu | Ile | Asp | Phe | Leu | Cys | Gly |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Trp | Thr | Met | Cys | Glu | Arg | Phe | Gly | Val | Leu | Gly | Ser | Ser | Lys | Val |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Leu | Ala | Lys | Lys | Glu | Leu | Leu | Tyr | Val | Pro | Leu | Ile | Gly | Trp | Thr |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Trp | Tyr | Phe | Leu | Glu | Ile | Val | Phe | Cys | Lys | Arg | Lys | Trp | Glu | Glu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Asp | Arg | Asp | Thr | Val | Val | Glu | Gly | Leu | Arg | Arg | Leu | Ser | Asp | Tyr |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Pro | Glu | Tyr | Met | Trp | Phe | Leu | Leu | Tyr | Cys | Glu | Gly | Thr | Arg | Phe |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Thr | Glu | Thr | Lys | His | Arg | Val | Ser | Met | Glu | Val | Ala | Ala | Ala | Lys |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Gly | Leu | Pro | Val | Leu | Lys | Tyr | His | Leu | Leu | Pro | Arg | Thr | Lys | Gly |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Phe | Thr | Thr | Ala | Val | Lys | Cys | Leu | Arg | Gly | Thr | Val | Ala | Ala | Val |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Tyr | Asp | Val | Thr | Leu | Asn | Phe | Arg | Gly | Asn | Lys | Asn | Pro | Ser | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Leu | Gly | Ile | Leu | Tyr | Gly | Lys | Lys | Tyr | Glu | Ala | Asp | Met | Cys | Val |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Arg | Arg | Phe | Pro | Leu | Glu | Asp | Ile | Pro | Leu | Asp | Glu | Lys | Glu | Ala |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Ala | Gln | Trp | Leu | His | Lys | Leu | Tyr | Gln | Glu | Lys | Asp | Ala | Leu | Gln |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Glu | Ile | Tyr | Asn | Gln | Lys | Gly | Met | Phe | Pro | Gly | Glu | Gln | Phe | Lys |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Pro | Ala | Arg | Arg | Pro | Trp | Thr | Leu | Leu | Asn | Phe | Leu | Ser | Trp | Ala |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Thr | Ile | Leu | Leu | Ser | Pro | Leu | Phe | Ser | Phe | Val | Leu | Gly | Val | Phe |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Ala | Ser | Gly | Ser | Pro | Leu | Leu | Ile | Leu | Thr | Phe | Leu | Gly | Phe | Val |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Gly | Ala | Ala | Ser | Phe | Gly | Val | Arg | Arg | Leu | Ile | Gly | Glu | Ser | Leu |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Glu | Pro | Gly | Arg | Trp | Arg | Leu | Gln |     |     |     |     |     |     |     |



365

<210> 298  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 298  
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<210> 299  
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<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 299  
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<210> 300  
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<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 300  
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<210> 301  
<211> 1334  
<212> DNA  
<213> Homo sapiens

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tgctttagca ctggggcact tcttgcttat ttctttggta ggaaaggggc 150  
tcagtttgtc ttgtgggggt ggtggcaggc aggccggctt acgcctgata 200  
cggccctggg ttagaaggga agggaagata aacttttata caaatgggga 250  
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ataccttctt ttctctaacc tggcataccc tgcttaaagc ctctcagggc 350  
ttctctctgt tcttaggatc aaagtattta gagctacaag agccctcatg 400



gtctggcccc tgccccctg gccagcttca ttgtacatgt ggtgttctct 450  
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 ctggcctgac agaattctcat cttgttttaat gctctcataa gaccacttgt 650  
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 ctatgaacta tactaaatag taagaatcta tggagccagg ctgggcatgg 1050  
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 gtcccagcta cttgggaggc tgaagcaaga gaatcgcttg aacctgggag 1250  
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 acagagtga actctatgtc caaaaaaaaa aaaa 1334

<210> 302

<211> 143

<212> PRT

<213> Homo sapiens

<400> 302

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | His | His | Ser | Leu | Gln | Cys | Pro | Gly | Ala | Ala | Thr | Arg | His | Ile |
| 1   |     |     |     | 5   |     |     |     | 10  |     |     |     |     |     | 15  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| His | Leu | Cys | Val | Cys | Phe | Ser | Phe | Ala | Leu | Ala | Leu | Gly | His | Phe |
|     |     |     |     | 20  |     |     |     | 25  |     |     |     |     |     | 30  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Leu | Ile | Ser | Leu | Val | Gly | Lys | Gly | Leu | Ser | Leu | Ser | Cys | Gly |
|     |     |     |     | 35  |     |     |     | 40  |     |     |     |     |     | 45  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Val | Gly | Gly | Arg | Gln | Ala | Gly | Leu | Arg | Leu | Ile | Arg | Pro | Trp | Val |
|     |     |     |     | 50  |     |     |     | 55  |     |     |     |     |     | 60  |

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Arg | Glu | Gly | Lys | Ile | Asn | Phe | Tyr | Thr | Asn | Gly | Asp | Ser | Trp |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 65         |     |     |     |     | 70         |     |     |     |     | 75         |
| Gly | Leu | Arg | Pro | Ala<br>80  | Ser | Ser | Val | Lys | Phe<br>85  | Leu | Gly | Ser | Ala | Tyr<br>90  |
| Thr | Phe | Phe | Ser | Leu<br>95  | Thr | Trp | His | Thr | Leu<br>100 | Leu | Lys | Ala | Ser | Gln<br>105 |
| Gly | Phe | Ser | Leu | Phe<br>110 | Leu | Gly | Ser | Lys | Tyr<br>115 | Leu | Glu | Leu | Gln | Glu<br>120 |
| Pro | Ser | Trp | Ser | Gly<br>125 | Pro | Cys | Pro | Pro | Gly<br>130 | Gln | Leu | His | Cys | Thr<br>135 |
| Cys | Gly | Val | Leu | Leu<br>140 | Ser | Phe | Leu |     |            |     |     |     |     |            |

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<210> 303
<211> 1768
<212> DNA
<213> Homo sapiens
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| aaggtgctgt | gattataggt | gtaagccacc | gtgtctggcc | tctgaacaac | 100 |
| tttttcagca | actaaaaaag | ccacaggagt | tgaactgcta | ggattctgac | 150 |
| tatgctgtgg | tggctagtgc | tcctactcct | acctacatta | aaatctgttt | 200 |
| tttgttctct | tgtaactagc | ctttaccttc | ctaacacaga | ggatctgtca | 250 |
| ctgtggctct | ggcccaaacc | tgaccttcac | tctggaacga | gaacagaggt | 300 |
| ttctaccac  | accgtcccct | cgaagccggg | gacagcctca | ccttgctggc | 350 |
| ctctcgctgg | agcagtgcc  | tcaccaactg | tctcacgtct | ggaggcactg | 400 |
| actcgggcag | tgcaggtagc | tgagcctctt | ggtagctgcg | gctttcaagg | 450 |
| tgggccttgc | cctggccgta | gaagggattg | acaagcccga | agatttcata | 500 |
| ggcgatggct | cccactgccc | aggcatcagc | cttgctgtag | tcaatcactg | 550 |
| ccctggggcc | aggacgggcc | gtggacacct | gctcagaagc | agtgggtgag | 600 |
| acatcacgct | gcccgcccat | ctaacctttt | catgtcctgc | acatcacctg | 650 |
| atccatgggc | taatctgaac | tctgtcccaa | ggaaccaga  | gcttgagtga | 700 |
| gctgtggctc | agaccagaa  | gggtctgct  | tagaccacct | ggtttatgtg | 750 |
| acaggacttg | cattctcctg | gaacatgagg | gaacgcggga | ggaaagcaaa | 800 |
| gtggcagggg | aggaacttgt | gccaaattat | gggtcagaaa | agatggaggt | 850 |



|            |            |             |             |            |      |
|------------|------------|-------------|-------------|------------|------|
| gttgggttat | cacaaggcat | cgagtctcct  | gcattcagtg  | gacatgtggg | 900  |
| ggaagggctg | ccgatggcgc | atgacacact  | cgggactcac  | ctctggggcc | 950  |
| atcagacagc | cgtttccgcc | ccgatccacg  | taccagctgc  | tgaagggcaa | 1000 |
| ctgcaggccg | atgctctcat | cagccaggca  | gcagccaaaa  | tctgcgatca | 1050 |
| ccagccaggg | gcagccgtct | gggaaggagc  | aagcaaagtg  | accatttctc | 1100 |
| ctccccctct | tccctctgag | aggccctcct  | atgtccctac  | taaagccacc | 1150 |
| agcaagacat | agctgacagg | ggctaattggc | tcagtgttgg  | cccaggaggt | 1200 |
| cagcaaggcc | tgagagctga | tcagaagggc  | ctgctgtgcg  | aacacggaaa | 1250 |
| tgctccagt  | aagcacaggc | tgcaaaatcc  | ccaggcaaaag | gactgtgtgg | 1300 |
| ctcaatttaa | atcatgttct | agtaattgga  | gctgtcccca  | agaccaaagg | 1350 |
| agctagagct | tggttcaa   | gatctccaag  | ggcccttata  | cccaggaga  | 1400 |
| ctttgatttg | aatttgaaac | cccaa       | aatcca      | ccaggtgcat | 1450 |
| taagaatcag | ttattgccgg | gtgtggtggc  | ctgtaatgcc  | aacattttgg | 1500 |
| gaggccgagg | cgggtagatc | acctgaggtc  | aggagttcaa  | gaccagcctg | 1550 |
| gccaacatgg | tgaacccct  | gtctctacta  | aaaatacaaa  | aaaactagcc | 1600 |
| aggcatggtg | gtgtgtgcct | gtatcccagc  | tactcgggag  | gctgagacag | 1650 |
| gagaattact | tgaacctggg | aggtgaagga  | ggctgagaca  | ggagaatcac | 1700 |
| ttcagcctga | gcaacacagc | gagactctgt  | ctcagaaaaa  | ataaaaaaag | 1750 |
| aattatggtt | atttgtaa   |             |             |            | 1768 |

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<210> 304
<211> 109
<212> PRT
<213> Homo sapiens
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|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
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| <400> 304 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Met       | Leu | Trp | Trp | Leu | Val | Leu | Leu | Leu | Leu | Pro | Thr | Leu | Lys | Ser |  |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Val       | Phe | Cys | Ser | Leu | Val | Thr | Ser | Leu | Tyr | Leu | Pro | Asn | Thr | Glu |  |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Asp       | Leu | Ser | Leu | Trp | Leu | Trp | Pro | Lys | Pro | Asp | Leu | His | Ser | Gly |  |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Thr       | Arg | Thr | Glu | Val | Ser | Thr | His | Thr | Val | Pro | Ser | Lys | Pro | Gly |  |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Thr       | Ala | Ser | Pro | Cys | Trp | Pro | Leu | Ala | Gly | Ala | Val | Pro | Ser | Pro |  |



|   |    |  |     |  |     |
|---|----|--|-----|--|-----|
|   | 65 |  | 70  |  | 75  |
| Thr Val Ser Arg Leu Glu Ala Leu Thr Arg Ala Val Gln Val Ala |    |  |     |  |     |
|   | 80 |  | 85  |  | 90  |
| Glu Pro Leu Gly Ser Cys Gly Phe Gln Gly Gly Pro Cys Pro Gly |    |  |     |  |     |
|   | 95 |  | 100 |  | 105 |
| Arg Arg Arg Asp   |    |  |     |  |     |

<210> 305  
 <211> 989  
 <212> DNA  
 <213> Homo sapiens

<400> 305  
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 ccggtctctc gtgcccgcgc cgctggccct gggctcagcc gcaactgggcg 150  
 ccgccttcgc cactggcctc ttctgtggga ggcggtgccc cccatggcga 200  
 ggccggcgag agcagtgcct gcttcccccc gaggacagcc gcctgtggca 250  
 gtatcttctg agccgtcca tgcgggagca cccggcgctg cgaagcctga 300  
 ggctgctgac cctggagcag ccgcaggggg attctatgat gacctgcgag 350  
 caggcccagc tcttgccaa cctggcgcgg ctcatccagg ccaagaaggc 400  
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 aactgctccg cctactacga gcgctgcctg cagctgctgc gaccggagg 700  
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 ataaagtggg gctgggacac aaaaaaaaaa aaaaaaaaaa 989



<210> 306  
 <211> 262  
 <212> PRT  
 <213> Homo sapiens

<400> 306

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Thr | Gln | Pro | Val | Pro | Arg | Leu | Ser | Val | Pro | Ala | Ala | Leu | Ala | 1   | 5   | 10  | 15 |
| Leu | Gly | Ser | Ala | Ala | Leu | Gly | Ala | Ala | Phe | Ala | Thr | Gly | Leu | Phe | 20  | 25  | 30  |    |
| Leu | Gly | Arg | Arg | Cys | Pro | Pro | Trp | Arg | Gly | Arg | Arg | Glu | Gln | Cys | 35  | 40  | 45  |    |
| Leu | Leu | Pro | Pro | Glu | Asp | Ser | Arg | Leu | Trp | Gln | Tyr | Leu | Leu | Ser | 50  | 55  | 60  |    |
| Arg | Ser | Met | Arg | Glu | His | Pro | Ala | Leu | Arg | Ser | Leu | Arg | Leu | Leu | 65  | 70  | 75  |    |
| Thr | Leu | Glu | Gln | Pro | Gln | Gly | Asp | Ser | Met | Met | Thr | Cys | Glu | Gln | 80  | 85  | 90  |    |
| Ala | Gln | Leu | Leu | Ala | Asn | Leu | Ala | Arg | Leu | Ile | Gln | Ala | Lys | Lys | 95  | 100 | 105 |    |
| Ala | Leu | Asp | Leu | Gly | Thr | Phe | Thr | Gly | Tyr | Ser | Ala | Leu | Ala | Leu | 110 | 115 | 120 |    |
| Ala | Leu | Ala | Leu | Pro | Ala | Asp | Gly | Arg | Val | Val | Thr | Cys | Glu | Val | 125 | 130 | 135 |    |
| Asp | Ala | Gln | Pro | Pro | Glu | Leu | Gly | Arg | Pro | Leu | Trp | Arg | Gln | Ala | 140 | 145 | 150 |    |
| Glu | Ala | Glu | His | Lys | Ile | Asp | Leu | Arg | Leu | Lys | Pro | Ala | Leu | Glu | 155 | 160 | 165 |    |
| Thr | Leu | Asp | Glu | Leu | Leu | Ala | Ala | Gly | Glu | Ala | Gly | Thr | Phe | Asp | 170 | 175 | 180 |    |
| Val | Ala | Val | Val | Asp | Ala | Asp | Lys | Glu | Asn | Cys | Ser | Ala | Tyr | Tyr | 185 | 190 | 195 |    |
| Glu | Arg | Cys | Leu | Gln | Leu | Leu | Arg | Pro | Gly | Gly | Ile | Leu | Ala | Val | 200 | 205 | 210 |    |
| Leu | Arg | Val | Leu | Trp | Arg | Gly | Lys | Val | Leu | Gln | Pro | Pro | Lys | Gly | 215 | 220 | 225 |    |
| Asp | Val | Ala | Ala | Glu | Cys | Val | Arg | Asn | Leu | Asn | Glu | Arg | Ile | Arg | 230 | 235 | 240 |    |
| Arg | Asp | Val | Arg | Val | Tyr | Ile | Ser | Leu | Leu | Pro | Leu | Gly | Asp | Gly | 245 | 250 | 255 |    |



Leu Thr Leu Ala Phe Lys Ile  
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<212> PRT
<213> Homo sapiens
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Gly Ala Val Lys Pro Pro Pro Asn Lys Tyr Pro Ile Phe Phe Phe



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |  |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|--|
|     |     |     |     | 35         |     |     |     | 40  |            |     |     | 45  |     |            |  |
| Gly | Thr | His | Glu | Thr<br>50  | Ala | Phe | Leu | Gly | Pro<br>55  | Lys | Asp | Leu | Phe | Pro<br>60  |  |
| Tyr | Asp | Lys | Cys | Lys<br>65  | Asp | Lys | Tyr | Gly | Lys<br>70  | Pro | Asn | Lys | Arg | Lys<br>75  |  |
| Gly | Phe | Asn | Glu | Gly<br>80  | Leu | Trp | Glu | Ile | Gln<br>85  | Asn | Asn | Pro | His | Ala<br>90  |  |
| Ser | Tyr | Ser | Ala | Pro<br>95  | Pro | Pro | Val | Ser | Ser<br>100 | Ser | Asp | Ser | Glu | Ala<br>105 |  |
| Pro | Glu | Ala | Asn | Pro<br>110 | Ala | Asp | Gly | Ser | Asp<br>115 | Ala | Asp | Glu | Asp | Asp<br>120 |  |
| Glu | Asp | Arg | Gly | Val<br>125 | Met | Ala | Val | Thr | Ala<br>130 | Val | Thr | Ala | Thr | Ala<br>135 |  |
| Ala | Ser | Asp | Arg | Met<br>140 | Glu | Ser | Asp | Ser | Asp<br>145 | Ser | Asp | Lys | Ser | Ser<br>150 |  |
| Asp | Asn | Ser | Gly | Leu<br>155 | Lys | Arg | Lys | Thr | Pro<br>160 | Ala | Leu | Lys | Met | Ser<br>165 |  |
| Val | Ser | Lys | Arg | Ala<br>170 | Arg | Lys | Ala | Ser | Ser<br>175 | Asp | Leu | Asp | Gln | Ala<br>180 |  |
| Ser | Val | Ser | Pro | Ser<br>185 | Glu | Glu | Glu | Asn | Ser<br>190 | Glu | Ser | Ser | Ser | Glu<br>195 |  |
| Ser | Glu | Lys | Thr | Ser<br>200 | Asp | Gln | Asp | Phe | Thr<br>205 | Pro | Glu | Lys | Lys | Ala<br>210 |  |
| Ala | Val | Arg | Ala | Pro<br>215 | Arg | Arg | Gly | Pro | Leu<br>220 | Gly | Gly | Arg | Lys | Lys<br>225 |  |
| Lys | Lys | Ala | Pro | Ser<br>230 | Ala | Ser | Asp | Ser | Asp<br>235 | Ser | Lys | Ala | Asp | Ser<br>240 |  |
| Asp | Gly | Ala | Lys | Pro<br>245 | Glu | Pro | Val | Ala | Met<br>250 | Ala | Arg | Ser | Ala | Ser<br>255 |  |
| Ser | Ser | Ser | Ser | Ser<br>260 | Ser | Ser | Ser | Ser | Asp<br>265 | Ser | Asp | Val | Ser | Val<br>270 |  |
| Lys | Lys | Pro | Pro | Arg<br>275 | Gly | Arg | Lys | Pro | Ala<br>280 | Glu | Lys | Pro | Leu | Pro<br>285 |  |
| Lys | Pro | Arg | Gly | Arg<br>290 | Lys | Pro | Lys | Pro | Glu<br>295 | Arg | Pro | Pro | Ser | Ser<br>300 |  |
| Ser | Ser | Ser | Asp | Ser<br>305 | Asp | Ser | Asp | Glu | Val<br>310 | Asp | Arg | Ile | Ser | Glu<br>315 |  |
| Trp | Lys | Arg | Arg | Asp        | Glu | Ala | Arg | Arg | Arg        | Glu | Leu | Glu | Ala | Arg        |  |



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 320        |     |     |     |     | 325        |     |     |     |     | 330        |
| Arg | Arg | Arg | Glu | Gln<br>335 | Glu | Glu | Glu | Leu | Arg        | Arg | Leu | Arg | Glu | Gln<br>345 |
| Glu | Lys | Glu | Glu | Lys<br>350 | Glu | Arg | Arg | Arg | Glu        | Arg | Ala | Asp | Arg | Gly<br>360 |
| Glu | Ala | Glu | Arg | Gly<br>365 | Ser | Gly | Gly | Ser | Ser        | Gly | Asp | Glu | Leu | Arg<br>375 |
| Glu | Asp | Asp | Glu | Pro<br>380 | Val | Lys | Lys | Arg | Gly<br>385 | Arg | Lys | Gly | Arg | Gly<br>390 |
| Arg | Gly | Pro | Pro | Ser<br>395 | Ser | Ser | Asp | Ser | Glu<br>400 | Pro | Glu | Ala | Glu | Leu<br>405 |
| Glu | Arg | Glu | Ala | Lys<br>410 | Lys | Ser | Ala | Lys | Lys<br>415 | Pro | Gln | Ser | Ser | Ser<br>420 |
| Thr | Glu | Pro | Ala | Arg<br>425 | Lys | Pro | Gly | Gln | Lys<br>430 | Glu | Lys | Arg | Val | Arg<br>435 |
| Pro | Glu | Glu | Lys | Gln<br>440 | Gln | Ala | Lys | Pro | Val<br>445 | Lys | Val | Glu | Arg | Thr<br>450 |
| Arg | Lys | Arg | Ser | Glu<br>455 | Gly | Phe | Ser | Met | Asp<br>460 | Arg | Lys | Val | Glu | Lys<br>465 |
| Lys | Lys | Glu | Pro | Ser<br>470 | Val | Glu | Glu | Lys | Leu<br>475 | Gln | Lys | Leu | His | Ser<br>480 |
| Glu | Ile | Lys | Phe | Ala<br>485 | Leu | Lys | Val | Asp | Ser<br>490 | Pro | Asp | Val | Lys | Arg<br>495 |
| Cys | Leu | Asn | Ala | Leu<br>500 | Glu | Glu | Leu | Gly | Thr<br>505 | Leu | Gln | Val | Thr | Ser<br>510 |
| Gln | Ile | Leu | Gln | Lys<br>515 | Asn | Thr | Asp | Val | Val<br>520 | Ala | Thr | Leu | Lys | Lys<br>525 |
| Ile | Arg | Arg | Tyr | Lys<br>530 | Ala | Asn | Lys | Asp | Val<br>535 | Met | Glu | Lys | Ala | Ala<br>540 |
| Glu | Val | Tyr | Thr | Arg<br>545 | Leu | Lys | Ser | Arg | Val<br>550 | Leu | Gly | Pro | Lys | Ile<br>555 |
| Glu | Ala | Val | Gln | Lys<br>560 | Val | Asn | Lys | Ala | Gly<br>565 | Met | Glu | Lys | Glu | Lys<br>570 |
| Ala | Glu | Glu | Lys | Leu<br>575 | Ala | Gly | Glu | Glu | Leu<br>580 | Ala | Gly | Glu | Glu | Ala<br>585 |
| Pro | Gln | Glu | Lys | Ala<br>590 | Glu | Asp | Lys | Pro | Ser<br>595 | Thr | Asp | Leu | Ser | Ala<br>600 |
| Pro | Val | Asn | Gly | Glu        | Ala | Thr | Ser | Gln | Lys        | Gly | Glu | Ser | Ala | Glu        |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
|     |     |     |     | 605 |     |     |     |     | 610 |     |     |     |     | 615 |  |
| Asp | Lys | Glu | His | Glu | Glu | Gly | Arg | Asp | Ser | Glu | Glu | Gly | Pro | Arg |  |
|     |     |     |     | 620 |     |     |     |     | 625 |     |     |     |     | 630 |  |
| Cys | Gly | Ser | Ser | Glu | Asp | Leu | His | Asp | Ser | Val | Arg | Glu | Gly | Pro |  |
|     |     |     |     | 635 |     |     |     |     | 640 |     |     |     |     | 645 |  |
| Asp | Leu | Asp | Arg | Pro | Gly | Ser | Asp | Arg | Gln | Glu | Arg | Glu | Arg | Ala |  |
|     |     |     |     | 650 |     |     |     |     | 655 |     |     |     |     | 660 |  |
| Arg | Gly | Asp | Ser | Glu | Ala | Leu | Asp | Glu | Glu | Ser |     |     |     |     |  |
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| ttcatcatga | atgctaataa | agatgaaaga | cttaaagcca | gaagccaaga | 150 |
| ttttcacctt | tttcctgctt | tgatgatgct | aagcatgacc | atgttgtttc | 200 |
| ttccagtcac | tggcactttg | aagcaaaata | ttccaagact | caagctaacc | 250 |
| tacaaagact | tgctgctttc | aaatagctgt | attccctttt | tgggttcac  | 300 |
| agaaggactg | gattttcaaa | ctcttctctt | agatgaggaa | agaggcaggc | 350 |
| tgctcttggg | agccaaagac | cacatctttc | tactcagtct | ggttgactta | 400 |
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| tcagagtact | tcagccctat | aacaaaactc | acatatatgt | gtgtggaact | 550 |
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| aatgtccttt | cgatcctcag | cagccttttg | cttcagtaat | gacagatgag | 700 |
| taccttact  | ctggaacagc | ttctgatttc | cttggcaaag | atactgcatt | 750 |
| cactcgatcc | cttgggccta | ctcatgacca | ccactacatc | agaactgaca | 800 |
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| ataccagaca | cctacaatcc | agatgatgat | aaaatatatt | tcttctttcg | 900 |
| tgaatcatct | caagaaggca | gtacctccga | taaaaccatc | ctttctcgag | 950 |







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<211> 777

<213> Homo sapiens

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Phe Leu Pro Val Thr Gly Thr Leu Lys Gln Asn Ile Pro Arg Leu  
35 40 45

Lys Leu Thr Tyr Lys Asp Leu Leu Leu Ser Asn Ser Cys Ile Pro  
50 55 60

Phe Leu Gly Ser Ser Glu Gly Leu Asp Phe Gln Thr Leu Leu Leu  
65 70 75

Asp Glu Glu Arg Gly Arg Leu Leu Leu Gly Ala Lys Asp His Ile  
80 85 90

Phe Leu Leu Ser Leu Val Asp Leu Asn Lys Asn Phe Lys Lys Ile  
95 100 105

Tyr Trp Pro Ala Ala Lys Glu Arg Val Glu Leu Cys Lys Leu Ala  
110 115 120

Gly Lys Asp Ala Asn Thr Glu Cys Ala Asn Phe Ile Arg Val Leu  
125 130 135

Gln Pro Tyr Asn Lys Thr His Ile Tyr Val Cys Gly Thr Gly Ala  
140 145 150

Phe His Pro Ile Cys Gly Tyr Ile Asp Leu Gly Val Tyr Lys Glu  
155 160 165

Asp Ile Ile Phe Lys Leu Asp Thr His Asn Leu Glu Ser Gly Arg  
170 175 180

Leu Lys Cys Pro Phe Asp Pro Gln Gln Pro Phe Ala Ser Val Met  
185 190 195

Thr Asp Glu Tyr Leu Tyr Ser Gly Thr Ala Ser Asp Phe Leu Gly  
200 205 210

Lys Asp Thr Ala Phe Thr Arg Ser Leu Gly Pro Thr His Asp His  
215 220 225

His Tyr Ile Arg Thr Asp Ile Ser Glu His Tyr Trp Leu Asn Gly



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
|     |     |     |     | 230        |     |     |     |     | 235        |     |     |     |     | 240        |
| Ala | Lys | Phe | Ile | Gly<br>245 | Thr | Phe | Phe | Ile | Pro<br>250 | Asp | Thr | Tyr | Asn | Pro<br>255 |
| Asp | Asp | Asp | Lys | Ile<br>260 | Tyr | Phe | Phe | Phe | Arg<br>265 | Glu | Ser | Ser | Gln | Glu<br>270 |
| Gly | Ser | Thr | Ser | Asp<br>275 | Lys | Thr | Ile | Leu | Ser<br>280 | Arg | Val | Gly | Arg | Val<br>285 |
| Cys | Lys | Asn | Asp | Val<br>290 | Gly | Gly | Gln | Arg | Ser<br>295 | Leu | Ile | Asn | Lys | Trp<br>300 |
| Thr | Thr | Phe | Leu | Lys<br>305 | Ala | Arg | Leu | Ile | Cys<br>310 | Ser | Ile | Pro | Gly | Ser<br>315 |
| Asp | Gly | Ala | Asp | Thr<br>320 | Tyr | Phe | Asp | Glu | Leu<br>325 | Gln | Asp | Ile | Tyr | Leu<br>330 |
| Leu | Pro | Thr | Arg | Asp<br>335 | Glu | Arg | Asn | Pro | Val<br>340 | Val | Tyr | Gly | Val | Phe<br>345 |
| Thr | Thr | Thr | Ser | Ser<br>350 | Ile | Phe | Lys | Gly | Ser<br>355 | Ala | Val | Cys | Val | Tyr<br>360 |
| Ser | Met | Ala | Asp | Ile<br>365 | Arg | Ala | Val | Phe | Asn<br>370 | Gly | Pro | Tyr | Ala | His<br>375 |
| Lys | Glu | Ser | Ala | Asp<br>380 | His | Arg | Trp | Val | Gln<br>385 | Tyr | Asp | Gly | Arg | Ile<br>390 |
| Pro | Tyr | Pro | Arg | Pro<br>395 | Gly | Thr | Cys | Pro | Ser<br>400 | Lys | Thr | Tyr | Asp | Pro<br>405 |
| Leu | Ile | Lys | Ser | Thr<br>410 | Arg | Asp | Phe | Pro | Asp<br>415 | Asp | Val | Ile | Ser | Phe<br>420 |
| Ile | Lys | Arg | His | Ser<br>425 | Val | Met | Tyr | Lys | Ser<br>430 | Val | Tyr | Pro | Val | Ala<br>435 |
| Gly | Gly | Pro | Thr | Phe<br>440 | Lys | Arg | Ile | Asn | Val<br>445 | Asp | Tyr | Arg | Leu | Thr<br>450 |
| Gln | Ile | Val | Val | Asp<br>455 | His | Val | Ile | Ala | Glu<br>460 | Asp | Gly | Gln | Tyr | Asp<br>465 |
| Val | Met | Phe | Leu | Gly<br>470 | Thr | Asp | Ile | Gly | Thr<br>475 | Val | Leu | Lys | Val | Val<br>480 |
| Ser | Ile | Ser | Lys | Glu<br>485 | Lys | Trp | Asn | Met | Glu<br>490 | Glu | Val | Val | Leu | Glu<br>495 |
| Glu | Leu | Gln | Ile | Phe<br>500 | Lys | His | Ser | Ser | Ile<br>505 | Ile | Leu | Asn | Met | Glu<br>510 |
| Leu | Ser | Leu | Lys | Gln        | Gln | Gln | Leu | Tyr | Ile        | Gly | Ser | Arg | Asp | Gly        |



| 515                                 | 520                 | 525 |
|-------------------------------------|---------------------|-----|
| Leu Val Gln Leu Ser Leu His Arg Cys | Asp Thr Tyr Gly Lys | Ala |
| 530                                 | 535                 | 540 |
| Cys Ala Asp Cys Cys Leu Ala Arg Asp | Pro Tyr Cys Ala Trp | Asp |
| 545                                 | 550                 | 555 |
| Gly Asn Ala Cys Ser Arg Tyr Ala Pro | Thr Ser Lys Arg Arg | Ala |
| 560                                 | 565                 | 570 |
| Arg Arg Gln Asp Val Lys Tyr Gly Asp | Pro Ile Thr Gln Cys | Trp |
| 575                                 | 580                 | 585 |
| Asp Ile Glu Asp Ser Ile Ser His Glu | Thr Ala Asp Glu Lys | Val |
| 590                                 | 595                 | 600 |
| Ile Phe Gly Ile Glu Phe Asn Ser Thr | Phe Leu Glu Cys Ile | Pro |
| 605                                 | 610                 | 615 |
| Lys Ser Gln Gln Ala Thr Ile Lys Trp | Tyr Ile Gln Arg Ser | Gly |
| 620                                 | 625                 | 630 |
| Asp Glu His Arg Glu Glu Leu Lys Pro | Asp Glu Arg Ile Ile | Lys |
| 635                                 | 640                 | 645 |
| Thr Glu Tyr Gly Leu Leu Ile Arg Ser | Leu Gln Lys Lys Asp | Ser |
| 650                                 | 655                 | 660 |
| Gly Met Tyr Tyr Cys Lys Ala Gln Glu | His Thr Phe Ile His | Thr |
| 665                                 | 670                 | 675 |
| Ile Val Lys Leu Thr Leu Asn Val Ile | Glu Asn Glu Gln Met | Glu |
| 680                                 | 685                 | 690 |
| Asn Thr Gln Arg Ala Glu His Glu Glu | Gly Gln Val Lys Asp | Leu |
| 695                                 | 700                 | 705 |
| Leu Ala Glu Ser Arg Leu Arg Tyr Lys | Asp Tyr Ile Gln Ile | Leu |
| 710                                 | 715                 | 720 |
| Ser Ser Pro Asn Phe Ser Leu Asp Gln | Tyr Cys Glu Gln Met | Trp |
| 725                                 | 730                 | 735 |
| His Arg Glu Lys Arg Arg Gln Arg Asn | Lys Gly Gly Pro Lys | Trp |
| 740                                 | 745                 | 750 |
| Lys His Met Gln Glu Met Lys Lys Lys | Arg Asn Arg Arg His | His |
| 755                                 | 760                 | 765 |
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| 770                                 | 775                 |     |

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&lt;212&gt; DNA

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<212> DNA  
<213> Homo sapiens

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|             |            |             |            |            |      |
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| agggaagatt  | aaatgacata | atgtatgtga  | tgcaactagc | aaagtaccag | 650  |
| tcccatagta  | agtcatgccc | cacagtattt  | ccaccacccc | ctgttctctg | 700  |
| ccttcccaac  | caggtactgc | aacgactgga  | gcagaggcgg | cagcaggctt | 750  |
| cagagcggga  | ggctccaagc | atagaacaga  | ggttacagga | agtgcgagag | 800  |
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| gctggaggtc  | atagaggagg | gagatgctga  | cgaatgggtc | aaggctcgga | 1200 |
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| gacctctccc  | tcccagagag | cagccaagac  | agtgacaatc | cctgcggggc | 1300 |
| agagcccaca  | gcattcctgg | cacaggccct  | gtacagctac | accggacaga | 1350 |
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| cgggccc aag | atggagtaga | tgacggcttc  | tggaggggag | aatttggggg | 1450 |
| ccgtgttggg  | gtcttcccct | ccctgctggg  | ggaagagctg | cttggcccc  | 1500 |
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| gaagccttga  | cccccagtga | tgctgctgtc  | cctatcttca | agctgtcaga | 1800 |
| ccacaccatc  | aatgatccag | agcaacacag  | ccaaaagctg | gaatcgccct | 1850 |
| tatttccacc  | ctcacctcca | agggtgga    | cttgcccctt | cccatttcta | 1900 |
| gagctggaac  | ccactccttt | tttcccatt   | gttctatcat | ctctaggacc | 1950 |
| ggaactacta  | ccttctcttc | tgtcatgacc  | ctatctaggg | tggtgaaatg | 2000 |



3350



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<211> 370

<212> PRT

<213> Homo sapiens

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| Met | Gln | Leu | Ala | Lys | Tyr | Gln | Ser | His | Ser | Lys | Ser | Cys | Pro | Thr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Val | Phe | Pro | Pro | Thr | Pro | Val | Leu | Cys | Leu | Pro | Asn | Gln | Val | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Gln | Arg | Leu | Glu | Gln | Arg | Arg | Gln | Gln | Ala | Ser | Glu | Arg | Glu | Ala |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Pro | Ser | Ile | Glu | Gln | Arg | Leu | Gln | Glu | Val | Arg | Glu | Ser | Ile | Arg |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Arg | Ala | Gln | Val | Ser | Gln | Val | Lys | Gly | Ala | Ala | Arg | Leu | Ala | Leu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Leu | Gln | Gly | Ala | Gly | Leu | Asp | Val | Glu | Arg | Trp | Leu | Lys | Pro | Ala |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Met | Thr | Gln | Ala | Gln | Asp | Glu | Val | Glu | Gln | Glu | Arg | Arg | Leu | Ser |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Glu | Ala | Arg | Leu | Ser | Gln | Arg | Asp | Leu | Ser | Pro | Thr | Ala | Glu | Asp |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ala | Glu | Leu | Ser | Asp | Phe | Glu | Glu | Cys | Glu | Glu | Thr | Gly | Glu | Leu |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Phe | Glu | Glu | Pro | Ala | Pro | Gln | Ala | Leu | Ala | Thr | Arg | Ala | Leu | Pro |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Cys | Pro | Ala | His | Val | Val | Phe | Arg | Tyr | Gln | Ala | Gly | Arg | Glu | Asp |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Glu | Leu | Thr | Ile | Thr | Glu | Gly | Glu | Trp | Leu | Glu | Val | Ile | Glu | Glu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Gly | Asp | Ala | Asp | Glu | Trp | Val | Lys | Ala | Arg | Asn | Gln | His | Gly | Glu |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Val | Gly | Phe | Val | Pro | Glu | Arg | Tyr | Leu | Asn | Phe | Pro | Asp | Leu | Ser |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Leu | Pro | Glu | Ser | Ser | Gln | Asp | Ser | Asp | Asn | Pro | Cys | Gly | Ala | Glu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Pro | Thr | Ala | Phe | Leu | Ala | Gln | Ala | Leu | Tyr | Ser | Tyr | Thr | Gly | Gln |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Ser | Ala | Glu | Glu | Leu | Ser | Phe | Pro | Glu | Gly | Ala | Leu | Ile | Arg | Leu |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Leu | Pro | Arg | Ala | Gln | Asp | Gly | Val | Asp | Asp | Gly | Phe | Trp | Arg | Gly |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Glu | Phe | Gly | Gly | Arg | Val | Gly | Val | Phe | Pro | Ser | Leu | Leu | Val | Glu |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Glu | Leu | Leu | Gly | Pro | Pro | Gly | Pro | Pro | Glu | Leu | Ser | Asp | Pro | Glu |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Gln | Met | Leu | Pro | Ser | Pro | Ser | Pro | Pro | Ser | Phe | Ser | Pro | Pro | Ala |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Pro | Thr | Ser | Val | Leu | Asp | Gly | Pro | Pro | Ala | Pro | Val | Leu | Pro | Gly |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Asp | Lys | Ala | Leu | Asp | Phe | Pro | Gly | Phe | Leu | Asp | Met | Met | Ala | Pro |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Arg | Leu | Arg | Pro | Met | Arg | Pro | Pro | Pro | Pro | Pro | Pro | Ala | Lys | Ala |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Pro | Asp | Pro | Gly | His | Pro | Asp | Pro | Leu | Thr |     |     |     |     |     |
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<212> PRT
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| Met<br>1 | Ser | Gln | Thr | Gly<br>5   | Ser | His | Pro | Gly | Arg<br>10  | Gly | Leu | Ala | Gly | Arg<br>15  |
| Trp      | Leu | Trp | Gly | Ala<br>20  | Gln | Pro | Cys | Leu | Leu<br>25  | Leu | Pro | Ile | Val | Pro<br>30  |
| Leu      | Ser | Trp | Leu | Val<br>35  | Trp | Leu | Leu | Leu | Leu<br>40  | Leu | Leu | Ala | Ser | Leu<br>45  |
| Leu      | Pro | Ser | Ala | Arg<br>50  | Leu | Ala | Ser | Pro | Leu<br>55  | Pro | Arg | Glu | Glu | Glu<br>60  |
| Ile      | Val | Phe | Pro | Glu<br>65  | Lys | Leu | Asn | Gly | Ser<br>70  | Val | Leu | Pro | Gly | Ser<br>75  |
| Gly      | Ala | Pro | Ala | Arg<br>80  | Leu | Leu | Cys | Arg | Leu<br>85  | Gln | Ala | Phe | Gly | Glu<br>90  |
| Thr      | Leu | Leu | Leu | Glu<br>95  | Leu | Glu | Gln | Asp | Ser<br>100 | Gly | Val | Gln | Val | Glu<br>105 |
| Gly      | Leu | Thr | Val | Gln<br>110 | Tyr | Leu | Gly | Gln | Ala<br>115 | Pro | Glu | Leu | Leu | Gly<br>120 |
| Gly      | Ala | Glu | Pro | Gly<br>125 | Thr | Tyr | Leu | Thr | Gly<br>130 | Thr | Ile | Asn | Gly | Asp<br>135 |
| Pro      | Glu | Ser | Val | Ala<br>140 | Ser | Leu | His | Trp | Asp<br>145 | Gly | Gly | Ala | Leu | Leu<br>150 |
| Gly      | Val | Leu | Gln | Tyr<br>155 | Arg | Gly | Ala | Glu | Leu<br>160 | His | Leu | Gln | Pro | Leu<br>165 |
| Glu      | Gly | Gly | Thr | Pro<br>170 | Asn | Ser | Ala | Gly | Gly<br>175 | Pro | Gly | Ala | His | Ile<br>180 |
| Leu      | Arg | Arg | Lys | Ser<br>185 | Pro | Ala | Ser | Gly | Gln<br>190 | Gly | Pro | Met | Cys | Asn<br>195 |
| Val      | Lys | Ala | Pro | Leu<br>200 | Gly | Ser | Pro | Ser | Pro<br>205 | Arg | Pro | Arg | Arg | Ala<br>210 |
| Lys      | Arg | Phe | Ala | Ser<br>215 | Leu | Ser | Arg | Phe | Val<br>220 | Glu | Thr | Leu | Val | Val<br>225 |
| Ala      | Asp | Asp | Lys | Met<br>230 | Ala | Ala | Phe | His | Gly<br>235 | Ala | Gly | Leu | Lys | Arg<br>240 |
| Tyr      | Leu | Leu | Thr | Val        | Met | Ala | Ala | Ala | Ala        | Lys | Ala | Phe | Lys | His        |



|   |     |     |
|---|-----|-----|
| 245   | 250 | 255 |
| Pro Ser Ile Arg Asn Pro Val Ser Leu Val Val Thr Arg Leu Val |     |     |
| 260   | 265 | 270 |
| Ile Leu Gly Ser Gly Glu Glu Gly Pro Gln Val Gly Pro Ser Ala |     |     |
| 275   | 280 | 285 |
| Ala Gln Thr Leu Arg Ser Phe Cys Ala Trp Gln Arg Gly Leu Asn |     |     |
| 290   | 295 | 300 |
| Thr Pro Glu Asp Ser Gly Pro Asp His Phe Asp Thr Ala Ile Leu |     |     |
| 305   | 310 | 315 |
| Phe Thr Arg Gln Asp Leu Cys Gly Val Ser Thr Cys Asp Thr Leu |     |     |
| 320   | 325 | 330 |
| Gly Met Ala Asp Val Gly Thr Val Cys Asp Pro Ala Arg Ser Cys |     |     |
| 335   | 340 | 345 |
| Ala Ile Val Glu Asp Asp Gly Leu Gln Ser Ala Phe Thr Ala Ala |     |     |
| 350   | 355 | 360 |
| His Glu Leu Gly His Val Phe Asn Met Leu His Asp Asn Ser Lys |     |     |
| 365   | 370 | 375 |
| Pro Cys Ile Ser Leu Asn Gly Pro Leu Ser Thr Ser Arg His Val |     |     |
| 380   | 385 | 390 |
| Met Ala Pro Val Met Ala His Val Asp Pro Glu Glu Pro Trp Ser |     |     |
| 395   | 400 | 405 |
| Pro Cys Ser Ala Arg Phe Ile Thr Asp Phe Leu Asp Asn Gly Tyr |     |     |
| 410   | 415 | 420 |
| Gly His Cys Leu Leu Asp Lys Pro Glu Ala Pro Leu His Leu Pro |     |     |
| 425   | 430 | 435 |
| Val Thr Phe Pro Gly Lys Asp Tyr Asp Ala Asp Arg Gln Cys Gln |     |     |
| 440   | 445 | 450 |
| Leu Thr Phe Gly Pro Asp Ser Arg His Cys Pro Gln Leu Pro Pro |     |     |
| 455   | 460 | 465 |
| Pro Cys Ala Ala Leu Trp Cys Ser Gly His Leu Asn Gly His Ala |     |     |
| 470   | 475 | 480 |
| Met Cys Gln Thr Lys His Ser Pro Trp Ala Asp Gly Thr Pro Cys |     |     |
| 485   | 490 | 495 |
| Gly Pro Ala Gln Ala Cys Met Gly Gly Arg Cys Leu His Met Asp |     |     |
| 500   | 505 | 510 |
| Gln Leu Gln Asp Phe Asn Ile Pro Gln Ala Gly Gly Trp Gly Pro |     |     |
| 515   | 520 | 525 |
| Trp Gly Pro Trp Gly Asp Cys Ser Arg Thr Cys Gly Gly Gly Val |     |     |



|                                     |                         |     |
|-------------------------------------|-------------------------|-----|
| 530                                 | 535                     | 540 |
| Gln Phe Ser Ser Arg Asp Cys Thr Arg | Pro Val Pro Arg Asn Gly |     |
| 545                                 | 550                     | 555 |
| Gly Lys Tyr Cys Glu Gly Arg Arg Thr | Arg Phe Arg Ser Cys Asn |     |
| 560                                 | 565                     | 570 |
| Thr Glu Asp Cys Pro Thr Gly Ser Ala | Leu Thr Phe Arg Glu Glu |     |
| 575                                 | 580                     | 585 |
| Gln Cys Ala Ala Tyr Asn His Arg Thr | Asp Leu Phe Lys Ser Phe |     |
| 590                                 | 595                     | 600 |
| Pro Gly Pro Met Asp Trp Val Pro Arg | Tyr Thr Gly Val Ala Pro |     |
| 605                                 | 610                     | 615 |
| Gln Asp Gln Cys Lys Leu Thr Cys Gln | Ala Arg Ala Leu Gly Tyr |     |
| 620                                 | 625                     | 630 |
| Tyr Tyr Val Leu Glu Pro Arg Val Val | Asp Gly Thr Pro Cys Ser |     |
| 635                                 | 640                     | 645 |
| Pro Asp Ser Ser Ser Val Cys Val Gln | Gly Arg Cys Ile His Ala |     |
| 650                                 | 655                     | 660 |
| Gly Cys Asp Arg Ile Ile Gly Ser Lys | Lys Lys Phe Asp Lys Cys |     |
| 665                                 | 670                     | 675 |
| Met Val Cys Gly Gly Asp Gly Ser Gly | Cys Ser Lys Gln Ser Gly |     |
| 680                                 | 685                     | 690 |
| Ser Phe Arg Lys Phe Arg Tyr Gly Tyr | Asn Asn Val Val Thr Ile |     |
| 695                                 | 700                     | 705 |
| Pro Ala Gly Ala Thr His Ile Leu Val | Arg Gln Gln Gly Asn Pro |     |
| 710                                 | 715                     | 720 |
| Gly His Arg Ser Ile Tyr Leu Ala Leu | Lys Leu Pro Asp Gly Ser |     |
| 725                                 | 730                     | 735 |
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| 740                                 | 745                     | 750 |
| Val Val Leu Pro Gly Ala Val Ser Leu | Arg Tyr Ser Gly Ala Thr |     |
| 755                                 | 760                     | 765 |
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| 770                                 | 775                     | 780 |
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| 785                                 | 790                     | 795 |
| Leu Arg Tyr Ser Phe Phe Val Pro Arg | Pro Thr Pro Ser Thr Pro |     |
| 800                                 | 805                     | 810 |
| Arg Pro Thr Pro Gln Asp Trp Leu His | Arg Arg Ala Gln Ile Leu |     |



815

820

825

Glu Ile Leu Arg Arg Arg Pro Trp Ala Gly Arg Lys  
830 835

<210> 318

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 318

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<210> 319

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 319

ctgtgctctt cggatgcagcc agtc 24

<210> 320

<211> 43

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 320

ccacagatgt ggtactgcct ggggcagtc gcttgcgcta cag 43

<210> 321

<211> 1197

<212> DNA

<213> Homo sapiens

<400> 321

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gagagaccat ggcaaagaat cctccagaga attgtgaaga ctgtcacatt 100

ctaaatgcag aagcttttaa atccaagaaa atatgtaaat cacttaagat 150

ttgtggactg gtgttttgta tcttgccct aactctaatt gtctgtttt 200

gggggagcaa gcacttctgg ccggaggtac ccaaaaaagc ctatgacatg 250

gagcacactt tctacagcaa tggagagaag aagaagattt acatggaaat 300

tgatcctgtg accagaactg aaatattcag aagcggaaat ggcaactgatg 350



aaacattgga agtgcacgac tttaaaaacg gatacactgg catctacttc 400  
 gtgggtcttc aaaaatgttt tatcaaaact cagattaaag tgattcctga 450  
 attttctgaa ccagaagagg aaatagatga gaatgaagaa attaccacaa 500  
 ctttctttga acagtcagtg atttgggtcc cagcagaaaa gcctattgaa 550  
 aaccgagatt ttcttaaaaa ttccaaaatt ctggagattt gtgataacgt 600  
 gaccatgtat tggatcaatc cactctaat atcagtttct gagttacaag 650  
 actttgagga ggaggagaa gatcttcact ttcttgccaa cgaaaaaaaa 700  
 gggattgaac aaaatgaaca gtgggtggtc cctcaagtga aagtagagaa 750  
 gaccgcgtcac gccagacaag caagtgagga agaacttcca ataaatgact 800  
 atactgaaaa tggaatagaa tttgatccca tgctggatga gagaggttat 850  
 tgttgatatt actgccgtcg aggcaaccgc tattgccgcc gcgtctgtga 900  
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 tcatctgtcg tgtcatcatg ccttgtaact ggtgggtggc ccgcatgctg 1000  
 gggagggtct aataggaggt ttgagctcaa atgcttaaac tgctggcaac 1050  
 atataataaa tgcatgctat tcaatgaatt tctgcctatg aggcatctgg 1100  
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<210> 322

<211> 317

<212> PRT

<213> Homo sapiens

<400> 322

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Lys | Asn | Pro | Pro | Glu | Asn | Cys | Glu | Asp | Cys | His | Ile | Leu |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Asn | Ala | Glu | Ala | Phe | Lys | Ser | Lys | Lys | Ile | Cys | Lys | Ser | Leu | Lys |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ile | Cys | Gly | Leu | Val | Phe | Gly | Ile | Leu | Ala | Leu | Thr | Leu | Ile | Val |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Leu | Phe | Trp | Gly | Ser | Lys | His | Phe | Trp | Pro | Glu | Val | Pro | Lys | Lys |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Tyr | Asp | Met | Glu | His | Thr | Phe | Tyr | Ser | Asn | Gly | Glu | Lys | Lys |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Lys | Ile | Tyr | Met | Glu | Ile | Asp | Pro | Val | Thr | Arg | Thr | Glu | Ile | Phe |



| 80  |     |     |     |     |     |     |     |     |     | 85  |     |     |     |     | 90 |  |  |  |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|--|--|--|--|
| Arg | Ser | Gly | Asn | Gly | Thr | Asp | Glu | Thr | Leu | Glu | Val | His | Asp | Phe |    |  |  |  |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |    |  |  |  |  |
| Lys | Asn | Gly | Tyr | Thr | Gly | Ile | Tyr | Phe | Val | Gly | Leu | Gln | Lys | Cys |    |  |  |  |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |    |  |  |  |  |
| Phe | Ile | Lys | Thr | Gln | Ile | Lys | Val | Ile | Pro | Glu | Phe | Ser | Glu | Pro |    |  |  |  |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |    |  |  |  |  |
| Glu | Glu | Glu | Ile | Asp | Glu | Asn | Glu | Glu | Ile | Thr | Thr | Thr | Phe | Phe |    |  |  |  |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |    |  |  |  |  |
| Glu | Gln | Ser | Val | Ile | Trp | Val | Pro | Ala | Glu | Lys | Pro | Ile | Glu | Asn |    |  |  |  |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |    |  |  |  |  |
| Arg | Asp | Phe | Leu | Lys | Asn | Ser | Lys | Ile | Leu | Glu | Ile | Cys | Asp | Asn |    |  |  |  |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |    |  |  |  |  |
| Val | Thr | Met | Tyr | Trp | Ile | Asn | Pro | Thr | Leu | Ile | Ser | Val | Ser | Glu |    |  |  |  |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |    |  |  |  |  |
| Leu | Gln | Asp | Phe | Glu | Glu | Glu | Gly | Glu | Asp | Leu | His | Phe | Pro | Ala |    |  |  |  |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |    |  |  |  |  |
| Asn | Glu | Lys | Lys | Gly | Ile | Glu | Gln | Asn | Glu | Gln | Trp | Val | Val | Pro |    |  |  |  |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |    |  |  |  |  |
| Gln | Val | Lys | Val | Glu | Lys | Thr | Arg | His | Ala | Arg | Gln | Ala | Ser | Glu |    |  |  |  |  |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |    |  |  |  |  |
| Glu | Glu | Leu | Pro | Ile | Asn | Asp | Tyr | Thr | Glu | Asn | Gly | Ile | Glu | Phe |    |  |  |  |  |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |    |  |  |  |  |
| Asp | Pro | Met | Leu | Asp | Glu | Arg | Gly | Tyr | Cys | Cys | Ile | Tyr | Cys | Arg |    |  |  |  |  |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |    |  |  |  |  |
| Arg | Gly | Asn | Arg | Tyr | Cys | Arg | Arg | Val | Cys | Glu | Pro | Leu | Leu | Gly |    |  |  |  |  |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |    |  |  |  |  |
| Tyr | Tyr | Pro | Tyr | Pro | Tyr | Cys | Tyr | Gln | Gly | Gly | Arg | Val | Ile | Cys |    |  |  |  |  |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |    |  |  |  |  |
| Arg | Val | Ile | Met | Pro | Cys | Asn | Trp | Trp | Val | Ala | Arg | Met | Leu | Gly |    |  |  |  |  |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |    |  |  |  |  |

Arg Val

<210> 323

<211> 1174

<212> DNA

<213> Homo sapiens

<400> 323

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 ggccgtgcag cttctgggct tcctgctcag cttcctgggc atggtgggca 150  
 cgttgatcac caccatcctg ccgcactggc ggaggacagc gcacgtgggc 200  
 accaacaatcc tcacggccgt gtcctacctg aaagggctct ggatggagtg 250  
 tgtgtggcac agcacaggca tctaccagtg ccagatctac cgatccctgc 300  
 tggcgctgcc ccaagacctc caggctgccc gcgccctcat ggtcatctcc 350  
 tgcctgctct cgggcatagc ctgcgcctgc gccgtcatcg ggatgaagtg 400  
 cacgcgctgc gccaagggca caccgcgcaa gaccaccttt gccatcctcg 450  
 gcggcaccct cttcatcctg gccggcctcc tgtgcatggt ggccgtctcc 500  
 tggaccacca acgacgtggt gcagaacttc tacaaccgcg tgctgcccag 550  
 cggcatgaag tttagagattg gccaggccct gtacctgggc ttcattctct 600  
 cgtccctctc gctcattggt ggcaccctgc ttgacctgct ctgccaggac 650  
 gaggcaccct acaggcccta ccaggccccg cccaggggcca ccacgaccac 700  
 tgcaaacacc gcacctgcct accagccacc agctgcctac aaagacaatc 750  
 gggccccctc agtgacctcg gccacgcaca gcgggtacag gctgaacgac 800  
 tacgtgtgag tccccacagc ctgcttctcc cctgggctgc tgtgggctgg 850  
 gtccccggcg ggactgtcaa tggaggcagg ggttccagca caaagtttac 900  
 ttctgggcaa tttttgtatc caaggaaata atgtgaatgc gaggaaatgt 950  
 ctttagagca caggacaga gggggaaata agaggaggag aaagctctct 1000  
 ataccaaaga ctgaaaaaaaa aaatcctgtc tgtttttgta tttattatat 1050  
 atatttatgt gggtgatttg ataacaagtt taatataaag tgacttggga 1100  
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 ggctgtttat gaaaaaaaaa aaaa 1174

<210> 324

<211> 239

<212> PRT

<213> Homo sapiens

<400> 324

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ala | Ser | Thr | Ala | Val | Gln | Leu | Leu | Gly | Phe | Leu | Leu | Ser | Phe |
| 1   |     |     |     |     | 5   |     |     |     | 10  |     |     |     |     | 15  |

Leu Gly Met Val Gly Thr Leu Ile Thr Thr Ile Leu Pro His Trp



|   |     |     |
|---|-----|-----|
| 20  | 25  | 30  |
| Arg Arg Thr Ala His Val Gly Thr Asn Ile Leu Thr Ala Val Ser |     |     |
| 35  | 40  | 45  |
| Tyr Leu Lys Gly Leu Trp Met Glu Cys Val Trp His Ser Thr Gly |     |     |
| 50  | 55  | 60  |
| Ile Tyr Gln Cys Gln Ile Tyr Arg Ser Leu Leu Ala Leu Pro Gln |     |     |
| 65  | 70  | 75  |
| Asp Leu Gln Ala Ala Arg Ala Leu Met Val Ile Ser Cys Leu Leu |     |     |
| 80  | 85  | 90  |
| Ser Gly Ile Ala Cys Ala Cys Ala Val Ile Gly Met Lys Cys Thr |     |     |
| 95  | 100 | 105 |
| Arg Cys Ala Lys Gly Thr Pro Ala Lys Thr Thr Phe Ala Ile Leu |     |     |
| 110   | 115 | 120 |
| Gly Gly Thr Leu Phe Ile Leu Ala Gly Leu Leu Cys Met Val Ala |     |     |
| 125   | 130 | 135 |
| Val Ser Trp Thr Thr Asn Asp Val Val Gln Asn Phe Tyr Asn Pro |     |     |
| 140   | 145 | 150 |
| Leu Leu Pro Ser Gly Met Lys Phe Glu Ile Gly Gln Ala Leu Tyr |     |     |
| 155   | 160 | 165 |
| Leu Gly Phe Ile Ser Ser Ser Leu Ser Leu Ile Gly Gly Thr Leu |     |     |
| 170   | 175 | 180 |
| Leu Cys Leu Ser Cys Gln Asp Glu Ala Pro Tyr Arg Pro Tyr Gln |     |     |
| 185   | 190 | 195 |
| Ala Pro Pro Arg Ala Thr Thr Thr Thr Ala Asn Thr Ala Pro Ala |     |     |
| 200   | 205 | 210 |
| Tyr Gln Pro Pro Ala Ala Tyr Lys Asp Asn Arg Ala Pro Ser Val |     |     |
| 215   | 220 | 225 |
| Thr Ser Ala Thr His Ser Gly Tyr Arg Leu Asn Asp Tyr Val     |     |     |
| 230   | 235 |     |

<210> 325  
 <211> 2121  
 <212> DNA  
 <213> Homo sapiens

<400> 325  
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 ggcagcttct cgcaggcggc agggcgggcg gccaggatca tgtccaccac 100  
 cacatgccaa gtggtggcgt tcctcctgtc catcctgggg ctggccggct 150  
 gcatcgcggc caccgggatg gacatgtgga gcacccagga cctgtacgac 200







|       |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| <400> | 326 |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
| Met   | Ser | Thr | Thr | Thr | Cys | Gln | Val | Val | Ala | Phe | Leu | Leu | Ser | Ile |  |
| 1     |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |  |
| Leu   | Gly | Leu | Ala | Gly | Cys | Ile | Ala | Ala | Thr | Gly | Met | Asp | Met | Trp |  |
|       |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |  |
| Ser   | Thr | Gln | Asp | Leu | Tyr | Asp | Asn | Pro | Val | Thr | Ser | Val | Phe | Gln |  |
|       |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Tyr   | Glu | Gly | Leu | Trp | Arg | Ser | Cys | Val | Arg | Gln | Ser | Ser | Gly | Phe |  |
|       |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Thr   | Glu | Cys | Arg | Pro | Tyr | Phe | Thr | Ile | Leu | Gly | Leu | Pro | Ala | Met |  |
|       |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Leu   | Gln | Ala | Val | Arg | Ala | Leu | Met | Ile | Val | Gly | Ile | Val | Leu | Gly |  |
|       |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Ala   | Ile | Gly | Leu | Leu | Val | Ser | Ile | Phe | Ala | Leu | Lys | Cys | Ile | Arg |  |
|       |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Ile   | Gly | Ser | Met | Glu | Asp | Ser | Ala | Lys | Ala | Asn | Met | Thr | Leu | Thr |  |
|       |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Ser   | Gly | Ile | Met | Phe | Ile | Val | Ser | Gly | Leu | Cys | Ala | Ile | Ala | Gly |  |
|       |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Val   | Ser | Val | Phe | Ala | Asn | Met | Leu | Val | Thr | Asn | Phe | Trp | Met | Ser |  |
|       |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |











<211> 225  
 <212> PRT  
 <213> Homo sapiens

<400> 328

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Ala | Thr | His | Ala | Leu | Glu | Ile | Ala | Gly | Leu | Phe | Leu | Gly | Gly | 1   | 5   | 10  | 15 |
| Val | Gly | Met | Val | Gly | Thr | Val | Ala | Val | Thr | Val | Met | Pro | Gln | Trp | 20  | 25  | 30  |    |
| Arg | Val | Ser | Ala | Phe | Ile | Glu | Asn | Asn | Ile | Val | Val | Phe | Glu | Asn | 35  | 40  | 45  |    |
| Phe | Trp | Glu | Gly | Leu | Trp | Met | Asn | Cys | Val | Arg | Gln | Ala | Asn | Ile | 50  | 55  | 60  |    |
| Arg | Met | Gln | Cys | Lys | Ile | Tyr | Asp | Ser | Leu | Leu | Ala | Leu | Ser | Pro | 65  | 70  | 75  |    |
| Asp | Leu | Gln | Ala | Ala | Arg | Gly | Leu | Met | Cys | Ala | Ala | Ser | Val | Met | 80  | 85  | 90  |    |
| Ser | Phe | Leu | Ala | Phe | Met | Met | Ala | Ile | Leu | Gly | Met | Lys | Cys | Thr | 95  | 100 | 105 |    |
| Arg | Cys | Thr | Gly | Asp | Asn | Glu | Lys | Val | Lys | Ala | His | Ile | Leu | Leu | 110 | 115 | 120 |    |
| Thr | Ala | Gly | Ile | Ile | Phe | Ile | Ile | Thr | Gly | Met | Val | Val | Leu | Ile | 125 | 130 | 135 |    |
| Pro | Val | Ser | Trp | Val | Ala | Asn | Ala | Ile | Ile | Arg | Asp | Phe | Tyr | Asn | 140 | 145 | 150 |    |
| Ser | Ile | Val | Asn | Val | Ala | Gln | Lys | Arg | Glu | Leu | Gly | Glu | Ala | Leu | 155 | 160 | 165 |    |
| Tyr | Leu | Gly | Trp | Thr | Thr | Ala | Leu | Val | Leu | Ile | Val | Gly | Gly | Ala | 170 | 175 | 180 |    |
| Leu | Phe | Cys | Cys | Val | Phe | Cys | Cys | Asn | Glu | Lys | Ser | Ser | Ser | Tyr | 185 | 190 | 195 |    |
| Arg | Tyr | Ser | Ile | Pro | Ser | His | Arg | Thr | Thr | Gln | Lys | Ser | Tyr | His | 200 | 205 | 210 |    |
| Thr | Gly | Lys | Lys | Ser | Pro | Ser | Val | Tyr | Ser | Arg | Ser | Gln | Tyr | Val | 215 | 220 | 225 |    |

<210> 329  
 <211> 1315  
 <212> DNA  
 <213> Homo sapiens

<400> 329

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 gaccgctttc atcggaaca gcatcgtggt ggcccagggt gtgtgggagg 150  
 gcctgtggat gtctcgtgtg gtgcagagca ccggccagat gcagtgaag 200  
 gtgtacgact cactgctggc gctgccacag gacctgcagg ctgcacgtgc 250  
 cctctgtgtc atcgccctcc ttgtggccct gttcggcttg ctggtctacc 300  
 ttgctggggc caagtgtacc acctgtgtgg aggagaagga ttccaaggcc 350  
 cgctgtgtgc tcacctctgg gattgtcttt gtcactcag gggctctgac 400  
 gctaataccc gtgtgctgga cggcgcatgc catcatccgg gacttctata 450  
 accccctggg ggctgaggcc caaaagcggg agctgggggc ctccctctac 500  
 ttgggctggg cggcctcagg ccttttgttg ctgggtgggg gggtgctgtg 550  
 ctgcacttgc ccctcggggg ggtcccaggg cccagccat tacatggccc 600  
 gctactcaac atctgccct gccatctctc gggggccctc tgagtacct 650  
 accaagaatt acgtctgacg tggaggggaa tgggggctcc gctggcgcta 700  
 gagccatcca gaagtggcag tgcccaacag ctttgggatg ggttcgtacc 750  
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 tcatttgaaa actgagccaa ggtgttgact cagactctca cttaggctct 850  
 gotgtttctc acccttgat gatggagcca aagaggggat gctttgagat 900  
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 agagttcctg ctgctgctgg gggctgggct tccctagatg tcaactggaca 1050  
 gctgcccccc atcctactca ggtctctgga gtcctctct tcacccctgg 1100  
 aaaaacaaat catctgttaa caaaggactg cccacctccg gaacttctga 1150  
 cctctgtttc ctccgtctg ataagacgtc cccccccag ggccagggtcc 1200  
 cagctatgta gacccccgcc cccacctcca aactgcacc cttctgcct 1250  
 gccccctcg tctaccccc tttaactca cttttttatc aaataaagca 1300  
 tgttttgtta gtgca 1315

<210> 330

<211> 220

<212> PRT

<213> Homo sapiens



|          |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|----------|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Met<br>1 | Ala | Ser | Ala | Gly<br>5   | Met | Gln | Ile | Leu | Gly<br>10  | Val | Val | Leu | Thr | Leu<br>15  |
| Leu      | Gly | Trp | Val | Asn<br>20  | Gly | Leu | Val | Ser | Cys<br>25  | Ala | Leu | Pro | Met | Trp<br>30  |
| Lys      | Val | Thr | Ala | Phe<br>35  | Ile | Gly | Asn | Ser | Ile<br>40  | Val | Val | Ala | Gln | Val<br>45  |
| Val      | Trp | Glu | Gly | Leu<br>50  | Trp | Met | Ser | Cys | Val<br>55  | Val | Gln | Ser | Thr | Gly<br>60  |
| Gln      | Met | Gln | Cys | Lys<br>65  | Val | Tyr | Asp | Ser | Leu<br>70  | Leu | Ala | Leu | Pro | Gln<br>75  |
| Asp      | Leu | Gln | Ala | Ala<br>80  | Arg | Ala | Leu | Cys | Val<br>85  | Ile | Ala | Leu | Leu | Val<br>90  |
| Ala      | Leu | Phe | Gly | Leu<br>95  | Leu | Val | Tyr | Leu | Ala<br>100 | Gly | Ala | Lys | Cys | Thr<br>105 |
| Thr      | Cys | Val | Glu | Glu<br>110 | Lys | Asp | Ser | Lys | Ala<br>115 | Arg | Leu | Val | Leu | Thr<br>120 |
| Ser      | Gly | Ile | Val | Phe<br>125 | Val | Ile | Ser | Gly | Val<br>130 | Leu | Thr | Leu | Ile | Pro<br>135 |
| Val      | Cys | Trp | Thr | Ala<br>140 | His | Ala | Ile | Ile | Arg<br>145 | Asp | Phe | Tyr | Asn | Pro<br>150 |
| Leu      | Val | Ala | Glu | Ala<br>155 | Gln | Lys | Arg | Glu | Leu<br>160 | Gly | Ala | Ser | Leu | Tyr<br>165 |
| Leu      | Gly | Trp | Ala | Ala<br>170 | Ser | Gly | Leu | Leu | Leu<br>175 | Leu | Gly | Gly | Gly | Leu<br>180 |
| Leu      | Cys | Cys | Thr | Cys<br>185 | Pro | Ser | Gly | Gly | Ser<br>190 | Gln | Gly | Pro | Ser | His<br>195 |
| Tyr      | Met | Ala | Arg | Tyr<br>200 | Ser | Thr | Ser | Ala | Pro<br>205 | Ala | Ile | Ser | Arg | Gly<br>210 |
| Pro      | Ser | Glu | Tyr | Pro<br>215 | Thr | Lys | Asn | Tyr | Val<br>220 |     |     |     |     |            |

ttctacatct tgagcatctt ctaccactcc gaattgaacc agtcttcaaa 100



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ggagtatcag cttttgttgg cagcaacatt attgtctttg agaggctctg 250  
ggaagggctc tggatgaatt gcatccgaca agccagggtc cggttgcaat 300  
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cgctgctcca attttcatat tctaaattca agtataccca taatcattag 1050  
caagtgtaca atgatggact acttattact ttttgacat catgtattat 1100  
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<210> 332

<211> 173

<212> PRT

<213> Homo sapiens

<400> 332

Met Asn Cys Ile Arg Gln Ala Arg Val Arg Leu Gln Cys Lys Phe  
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20 25 30

Ala Leu Met Cys Val Ala Val Ala Leu Ser Leu Ile Ala Leu Leu



|   |     |  |     |  |     |
|---|-----|--|-----|--|-----|
|   | 35  |  | 40  |  | 45  |
| Ile Gly Ile Cys Gly Met Lys Gln Val Gln Cys Thr Gly Ser Asn | 50  |  | 55  |  | 60  |
| Glu Arg Ala Lys Ala Tyr Leu Leu Gly Thr Ser Gly Val Leu Phe | 65  |  | 70  |  | 75  |
| Ile Leu Thr Gly Ile Phe Val Leu Ile Pro Val Ser Trp Thr Ala | 80  |  | 85  |  | 90  |
| Asn Ile Ile Ile Arg Asp Phe Tyr Asn Pro Ala Ile His Ile Gly | 95  |  | 100 |  | 105 |
| Gln Lys Arg Glu Leu Gly Ala Ala Leu Phe Leu Gly Trp Ala Ser | 110 |  | 115 |  | 120 |
| Ala Ala Val Leu Phe Ile Gly Gly Gly Leu Leu Cys Gly Phe Cys | 125 |  | 130 |  | 135 |
| Cys Cys Asn Arg Lys Lys Gln Gly Tyr Arg Tyr Pro Val Pro Gly | 140 |  | 145 |  | 150 |
| Tyr Arg Val Pro His Thr Asp Lys Arg Arg Asn Thr Thr Met Leu | 155 |  | 160 |  | 165 |
| Ser Lys Thr Ser Thr Ser Tyr Val                             | 170 |  |     |  |     |

<210> 333

<211> 535

<212> DNA

<213> Homo sapiens

<400> 333

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agaagtatcc agtgggtggcc atcccctgcc ccatcacata cctaccagtt 200
tgtggttctg actacatcac ctatgggaat gaatgtcact tgtgtaccga 250
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tttttaacac gtcaataaaa aaataatctc ccaga 535

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<400> 334

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Lys | Ile | Thr | Gly | Gly | Leu | Leu | Leu | Leu | Cys | Thr | Val | Val | Tyr |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Phe | Cys | Ser | Ser | Ser | Glu | Ala | Ala | Ser | Leu | Ser | Pro | Lys | Lys | Val |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Asp | Cys | Ser | Ile | Tyr | Lys | Lys | Tyr | Pro | Val | Val | Ala | Ile | Pro | Cys |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Pro | Ile | Thr | Tyr | Leu | Pro | Val | Cys | Gly | Ser | Asp | Tyr | Ile | Thr | Tyr |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Asn | Glu | Cys | His | Leu | Cys | Thr | Glu | Ser | Leu | Lys | Ser | Asn | Gly |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Arg | Val | Gln | Phe | Leu | His | Asp | Gly | Ser | Cys |     |     |     |     |     |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     |     |

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<210> 335
<211> 742
<212> DNA
<213> Homo sapiens
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<400> 335

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| ctgctcgcgc | cccgcgcga   | tggctgcctc | ccccgcgcgg  | cctgctgtcc | 100 |
| tggccctgac | cgggctggcg  | ctgctcctgc | tcctgtgctg  | gggccaggt  | 150 |
| ggcataagtg | gaaataaact  | caagctgatg | cttcaaaaac  | gagaagcacc | 200 |
| tgttccaact | aagactaaag  | tggccgttga | tgagaataaa  | gcaaagaat  | 250 |
| tccttggcag | cctgaagcgc  | cagaagcggc | agctgtggga  | ccggactcgg | 300 |
| cccgaggtgc | agcagtggta  | ccagcagttt | ctctacatgg  | gctttgatga | 350 |
| agcgaaattt | gaagatgaca  | tcacctattg | gcttaacaga  | gatcgaaatg | 400 |
| gacatgaata | ctatggcgat  | tactaccaac | gtcactatga  | tgaagactct | 450 |
| gcaattggtc | cccggagccc  | ctacggcttt | aggcatggag  | ccagcgtcaa | 500 |
| ctacgatgac | tactaaccat  | gacttgccac | acgctgtaca  | agaagcaa   | 550 |
| agcgattctc | ttcatgtatc  | tcctaatacc | ttacactact  | tggtttctga | 600 |
| tttgctctat | ttcagcagat  | cttttctacc | tactttgtgt  | gatcaaaaaa | 650 |
| gaagagttaa | aacaacacat  | gtaaatgcct | tttgataattt | catgggaatg | 700 |



cctctcattt aaaaatagaa ataaagcatt ttgttaaaaa ga 742

<210> 336  
 <211> 148  
 <212> PRT  
 <213> Homo sapiens

<400> 336  
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 Leu Ala Leu Leu Leu Leu Leu Cys Trp Gly Pro Gly Gly Ile Ser  
                   20                  25                  30  
 Gly Asn Lys Leu Lys Leu Met Leu Gln Lys Arg Glu Ala Pro Val  
                   35                  40                  45  
 Pro Thr Lys Thr Lys Val Ala Val Asp Glu Asn Lys Ala Lys Glu  
                   50                  55                  60  
 Phe Leu Gly Ser Leu Lys Arg Gln Lys Arg Gln Leu Trp Asp Arg  
                   65                  70                  75  
 Thr Arg Pro Glu Val Gln Gln Trp Tyr Gln Gln Phe Leu Tyr Met  
                   80                  85                  90  
 Gly Phe Asp Glu Ala Lys Phe Glu Asp Asp Ile Thr Tyr Trp Leu  
                   95                  100                  105  
 Asn Arg Asp Arg Asn Gly His Glu Tyr Tyr Gly Asp Tyr Tyr Gln  
                   110                  115                  120  
 Arg His Tyr Asp Glu Asp Ser Ala Ile Gly Pro Arg Ser Pro Tyr  
                   125                  130                  135  
 Gly Phe Arg His Gly Ala Ser Val Asn Tyr Asp Asp Tyr  
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<210> 337  
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 <212> DNA  
 <213> Homo sapiens

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 tgaaggggtg ggtgatgagg tgaccgtcct tttctcggtg cttgcctgcc 150  
 ttctggtgct ggcccttgcc tgggtctcaa cgcacaccgc tgagggcggg 200  
 gaccactgc ccagccgtc agggacccca acgcatccc agcccagcgc 250  
 agccatggca gctaccgaca gcatgagagg ggaggcccca ggggcagaga 300



cccccagcct gagacacaga ggtcaagctg cacagccaga gccagcacg 350  
 gggttcacag caacaccgcc agccccggac tccccgcagg agcccctcgt 400  
 gctacggctg aaattcctca atgattcaga gcagggtggc agggcctggc 450  
 cccacgacac cattggctcc ttgaaaagga cccagtttcc cggccgggaa 500  
 cagcagggtgc gactcatcta ccaagggcag ctgctaggcg acgacacca 550  
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 gccccgggca gagccggggc gccccggggg ccggtcttag tgttctgccg 1150  
 gaggaccag ccgcctcaa tccctgacag ctcttgggc tgagttgggg 1200  
 acgccaggtc ggtgggaggc tggatgaagg gagcggggag gggcagagga 1250  
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 aaaaaaaaa 1310

<210> 338  
 <211> 246  
 <212> PRT  
 <213> Homo sapiens

<400> 338  
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 Ser Val Leu Ala Cys Leu Leu Val Leu Ala Leu Ala Trp Val Ser  
 20 25 30  
 Thr His Thr Ala Glu Gly Gly Asp Pro Leu Pro Gln Pro Ser Gly  
 35 40 45



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Thr | Pro | Thr | Pro | Ser | Gln | Pro | Ser | Ala | Ala | Met | Ala | Ala | Thr | Asp | 50  | 55  | 60  |
| Ser | Met | Arg | Gly | Glu | Ala | Pro | Gly | Ala | Glu | Thr | Pro | Ser | Leu | Arg | 65  | 70  | 75  |
| His | Arg | Gly | Gln | Ala | Ala | Gln | Pro | Glu | Pro | Ser | Thr | Gly | Phe | Thr | 80  | 85  | 90  |
| Ala | Thr | Pro | Pro | Ala | Pro | Asp | Ser | Pro | Gln | Glu | Pro | Leu | Val | Leu | 95  | 100 | 105 |
| Arg | Leu | Lys | Phe | Leu | Asn | Asp | Ser | Glu | Gln | Val | Ala | Arg | Ala | Trp | 110 | 115 | 120 |
| Pro | His | Asp | Thr | Ile | Gly | Ser | Leu | Lys | Arg | Thr | Gln | Phe | Pro | Gly | 125 | 130 | 135 |
| Arg | Glu | Gln | Gln | Val | Arg | Leu | Ile | Tyr | Gln | Gly | Gln | Leu | Leu | Gly | 140 | 145 | 150 |
| Asp | Asp | Thr | Gln | Thr | Leu | Gly | Ser | Leu | His | Leu | Pro | Pro | Asn | Cys | 155 | 160 | 165 |
| Val | Leu | His | Cys | His | Val | Ser | Thr | Arg | Val | Gly | Pro | Pro | Asn | Pro | 170 | 175 | 180 |
| Pro | Cys | Pro | Pro | Gly | Ser | Glu | Pro | Gly | Pro | Ser | Gly | Leu | Glu | Ile | 185 | 190 | 195 |
| Gly | Ser | Leu | Leu | Leu | Pro | Leu | Leu | Leu | Leu | Leu | Leu | Leu | Leu | Leu | 200 | 205 | 210 |
| Trp | Tyr | Cys | Gln | Ile | Gln | Tyr | Arg | Pro | Phe | Phe | Pro | Leu | Thr | Ala | 215 | 220 | 225 |
| Thr | Leu | Gly | Leu | Ala | Gly | Phe | Thr | Leu | Leu | Leu | Ser | Leu | Leu | Ala | 230 | 235 | 240 |
| Phe | Ala | Met | Tyr | Arg | Pro |     |     |     |     |     |     |     |     |     | 245 |     |     |

&lt;210&gt; 339

&lt;211&gt; 849

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 339

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tcaggccagc ctcacagtc gctgtgactt ggcccaggtg ctgcagctgg 250



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<210> 340

<211> 148

<212> PRT

<213> Homo sapiens

<400> 340

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Thr | Lys | Ala | Leu | Leu | Ile | Tyr | Leu | Val | Ser | Ser | Phe | Leu | Ala | 1   | 5   | 10  | 15 |
| Leu | Asn | Gln | Ala | Ser | Leu | Ile | Ser | Arg | Cys | Asp | Leu | Ala | Gln | Val | 20  | 25  | 30  |    |
| Leu | Gln | Leu | Glu | Asp | Leu | Asp | Gly | Phe | Glu | Gly | Tyr | Ser | Leu | Ser | 35  | 40  | 45  |    |
| Asp | Trp | Leu | Cys | Leu | Ala | Phe | Val | Glu | Ser | Lys | Phe | Asn | Ile | Ser | 50  | 55  | 60  |    |
| Lys | Ile | Asn | Glu | Asn | Ala | Asp | Gly | Ser | Phe | Asp | Tyr | Gly | Leu | Phe | 65  | 70  | 75  |    |
| Gln | Ile | Asn | Ser | His | Tyr | Trp | Cys | Asn | Asp | Tyr | Lys | Ser | Tyr | Ser | 80  | 85  | 90  |    |
| Glu | Asn | Leu | Cys | His | Val | Asp | Cys | Gln | Asp | Leu | Leu | Asn | Pro | Asn | 95  | 100 | 105 |    |
| Leu | Leu | Ala | Gly | Ile | His | Cys | Ala | Lys | Arg | Ile | Val | Ser | Gly | Ala | 110 | 115 | 120 |    |
| Arg | Gly | Met | Asn | Asn | Trp | Val | Glu | Trp | Arg | Leu | His | Cys | Ser | Gly | 125 | 130 | 135 |    |



<400> 345



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<210> 346

<211> 2575

<212> DNA

<213> Homo sapiens

<400> 346

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aaggagaaaa ccggggtaaa gggagggag caattcaatt tgaagtcctt 200  
gtgaatgggc tttcagaagg caattaaaga aatccactca gagaggactt 250  
ggggtgaaac ttgggtcctg tggttttctg attgtaagtg gaagcaggtc 300  
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&lt;210&gt; 347

&lt;211&gt; 639



&lt;212&gt; PRT

&lt;213&gt; Homo sapiens

&lt;400&gt; 347

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |    |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|----|
| Met | Leu | Leu | Arg | Lys | Arg | Tyr | Arg | His | Arg | Pro | Cys | Arg | Leu | Gln | 1   | 5   | 10  | 15 |
| Phe | Leu | Leu | Leu | Leu | Leu | Met | Leu | Gly | Cys | Val | Leu | Met | Met | Val | 20  | 25  | 30  |    |
| Ala | Met | Leu | His | Pro | Pro | His | His | Thr | Leu | His | Gln | Thr | Val | Thr | 35  | 40  | 45  |    |
| Ala | Gln | Ala | Ser | Lys | His | Ser | Pro | Glu | Ala | Arg | Tyr | Arg | Leu | Asp | 50  | 55  | 60  |    |
| Phe | Gly | Glu | Ser | Gln | Asp | Trp | Val | Leu | Glu | Ala | Glu | Asp | Glu | Gly | 65  | 70  | 75  |    |
| Glu | Glu | Tyr | Ser | Pro | Leu | Glu | Gly | Leu | Pro | Pro | Phe | Ile | Ser | Leu | 80  | 85  | 90  |    |
| Arg | Glu | Asp | Gln | Leu | Leu | Val | Ala | Val | Ala | Leu | Pro | Gln | Ala | Arg | 95  | 100 | 105 |    |
| Arg | Asn | Gln | Ser | Gln | Gly | Arg | Arg | Gly | Gly | Ser | Tyr | Arg | Leu | Ile | 110 | 115 | 120 |    |
| Lys | Gln | Pro | Arg | Arg | Gln | Asp | Lys | Glu | Ala | Pro | Lys | Arg | Asp | Trp | 125 | 130 | 135 |    |
| Gly | Ala | Asp | Glu | Asp | Gly | Glu | Val | Ser | Glu | Glu | Glu | Glu | Leu | Thr | 140 | 145 | 150 |    |
| Pro | Phe | Ser | Leu | Asp | Pro | Arg | Gly | Leu | Gln | Glu | Ala | Leu | Ser | Ala | 155 | 160 | 165 |    |
| Arg | Ile | Pro | Leu | Gln | Arg | Ala | Leu | Pro | Glu | Val | Arg | His | Pro | Leu | 170 | 175 | 180 |    |
| Cys | Leu | Gln | Gln | His | Pro | Gln | Asp | Ser | Leu | Pro | Thr | Ala | Ser | Val | 185 | 190 | 195 |    |
| Ile | Leu | Cys | Phe | His | Asp | Glu | Ala | Trp | Ser | Thr | Leu | Leu | Arg | Thr | 200 | 205 | 210 |    |
| Val | His | Ser | Ile | Leu | Asp | Thr | Val | Pro | Arg | Ala | Phe | Leu | Lys | Glu | 215 | 220 | 225 |    |
| Ile | Ile | Leu | Val | Asp | Asp | Leu | Ser | Gln | Gln | Gly | Gln | Leu | Lys | Ser | 230 | 235 | 240 |    |
| Ala | Leu | Ser | Glu | Tyr | Val | Ala | Arg | Leu | Glu | Gly | Val | Lys | Leu | Leu | 245 | 250 | 255 |    |
| Arg | Ser | Asn | Lys | Arg | Leu | Gly | Ala | Ile | Arg | Ala | Arg | Met | Leu | Gly | 260 | 265 | 270 |    |







12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100 101 102 103 104 105 106 107 108 109 110 111 112 113 114 115 116 117 118 119 120 121 122 123 124 125 126 127 128 129 130 131 132 133 134 135 136 137 138 139 140 141 142 143 144 145 146 147 148 149 150 151 152 153 154 155 156 157 158 159 160 161 162 163 164 165 166 167 168 169 170 171 172 173 174 175 176 177 178 179 180 181 182 183 184 185 186 187 188 189 190 191 192 193 194 195 196 197 198 199 200 201 202 203 204 205 206 207 208 209 210 211 212 213 214 215 216 217 218 219 220 221 222 223 224 225 226 227 228 229 230 231 232 233 234 235 236 237 238 239 240 241 242 243 244 245 246 247 248 249 250 251 252 253 254 255 256 257 258 259 260 261 262 263 264 265 266 267 268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298 299 300 301 302 303 304 305 306 307 308 309 310 311 312 313 314 315 316 317 318 319 320 321 322 323 324 325 326 327 328 329 330 331 332 333 334 335 336 337 338 339 340 341 342 343 344 345 346 347 348 349 350 351 352 353 354 355 356 357 358 359 360 361 362 363 364 365 366 367 368 369 370 371 372 373 374 375 376 377 378 379 380 381 382 383 384 385 386 387 388 389 390 391 392 393 394 395 396 397 398 399 400 401 402 403 404 405 406 407 408 409 410 411 412 413 414 415 416 417 418 419 420 421 422 423 424 425 426 427 428 429 430 431 432 433 434 435 436 437 438 439 440 441 442 443 444 445 446 447 448 449 450 451 452 453 454 455 456 457 458 459 460 461 462 463 464 465 466 467 468 469 470 471 472 473 474 475 476 477 478 479 480 481 482 483 484 485 486 487 488 489 490 491 492 493 494 495 496 497 498 499 500 501 502 503 504 505 506 507 508 509 510 511 512 513 514 515 516 517 518 519 520 521 522 523 524 525 526 527 528 529 530 531 532 533 534 535 536 537 538 539 540 541 542 543 544 545 546 547 548 549 550 551 552 553 554 555 556 557 558 559 560 561 562 563 564 565 566 567 568 569 570 571 572 573 574 575 576 577 578 579 580 581 582 583 584 585 586 587 588 589 590 591 592 593 594 595 596 597 598 599 600 601 602 603 604 605 606 607 608 609 610 611 612 613 614 615 616 617 618 619 620 621 622 623 624 625 626 627 628 629 630 631 632 633 634 635 636 637 638 639 640 641 642 643 644 645 646 647 648 649 650 651 652 653 654 655 656 657 658 659 660 661 662 663 664 665 666 667 668 669 670 671 672 673 674 675 676 677 678 679 680 681 682 683 684 685 686 687 688 689 690 691 692 693 694 695 696 697 698 699 700 701 702 703 704 705 706 707 708 709 710 711 712 713 714 715 716 717 718 719 720 721 722 723 724 725 726 727 728 729 730 731 732 733 734 735 736 737 738 739 740 741 742 743 744 745 746 747 748 749 750 751 752 753 754 755 756 757 758 759 760 761 762 763 764 765 766 767 768 769 770 771 772 773 774 775 776 777 778 779 780 781 782 783 784 785 786 787 788 789 790 791 792 793 794 795 796 797 798 799 800 801 802 803 804 805 806 807 808 809 810 811 812 813 814 815 816 817 818 819 820 821 822 823 824 825 826 827 828 829 830 831 832 833 834 835 836 837 838 839 840 841 842 843 844 845 846 847 848 849 850 851 852 853 854 855 856 857 858 859 860 861 862 863 864 865 866 867 868 869 870 871 872 873 874 875 876 877 878 879 880 881 882 883 884 885 886 887 888 889 890 891 892 893 894 895 896 897 898 899 900 901 902 903 904 905 906 907 908 909 910 911 912 913 914 915 916 917 918 919 920 921 922 923 924 925 926 927 928 929 930 931 932 933 934 935 936 937 938 939 940 941 942 943 944 945 946 947 948 949 950 951 952 953 954 955 956 957 958 959 960 961 962 963 964 965 966 967 968 969 970 971 972 973 974 975 976 977 978 979 980 981 982 983 984 985 986 987 988 989 990 991 992 993 994 995 996 997 998 999 1000 1001 1002 1003 1004 1005 1006 1007 1008 1009 1010 1011 1012 1013 1014 1015 1016 1017 1018 1019 1020 1021 1022 1023 1024 1025 1026 1027 1028 1029 1030 1031 1032 1033 1034 1035 1036 1037 1038 1039 1040 1041 1042 1043 1044 1045

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<210> 349

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 349

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<210> 350

<211> 45

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 350

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<210> 351

<211> 2524

<212> DNA

<213> Homo sapiens



&lt;400&gt; 351

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<210> 352

<211> 243

<212> PRT

<213> Homo sapiens

<400> 352

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| Met | Arg | Pro | Gln | Gly | Pro | Ala | Ala | Ser | Pro | Gln | Arg | Leu | Arg | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Leu | Leu | Leu | Leu | Leu | Leu | Leu | Gln | Leu | Pro | Ala | Pro | Ser | Ser | Ala |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Ser | Glu | Ile | Pro | Lys | Gly | Lys | Gln | Lys | Ala | Gln | Leu | Arg | Gln | Arg |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Glu | Val | Val | Asp | Leu | Tyr | Asn | Gly | Met | Cys | Leu | Gln | Gly | Pro | Ala |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Gly | Val | Pro | Gly | Arg | Asp | Gly | Ser | Pro | Gly | Ala | Asn | Val | Ile | Pro |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Gly | Thr | Pro | Gly | Ile | Pro | Gly | Arg | Asp | Gly | Phe | Lys | Gly | Glu | Lys |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Gly | Glu | Cys | Leu | Arg | Glu | Ser | Phe | Glu | Glu | Ser | Trp | Thr | Pro | Asn |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Tyr | Lys | Gln | Cys | Ser | Trp | Ser | Ser | Leu | Asn | Tyr | Gly | Ile | Asp | Leu |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Gly | Lys | Ile | Ala | Glu | Cys | Thr | Phe | Thr | Lys | Met | Arg | Ser | Asn | Ser |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Ala | Leu | Arg | Val | Leu | Phe | Ser | Gly | Ser | Leu | Arg | Leu | Lys | Cys | Arg |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Asn | Ala | Cys | Cys | Gln | Arg | Trp | Tyr | Phe | Thr | Phe | Asn | Gly | Ala | Glu |  |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |  |
| Cys | Ser | Gly | Pro | Leu | Pro | Ile | Glu | Ala | Ile | Ile | Tyr | Leu | Asp | Gln |  |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |  |
| Gly | Ser | Pro | Glu | Met | Asn | Ser | Thr | Ile | Asn | Ile | His | Arg | Thr | Ser |  |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |  |
| Ser | Val | Glu | Gly | Leu | Cys | Glu | Gly | Ile | Gly | Ala | Gly | Leu | Val | Asp |  |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |  |
| Val | Ala | Ile | Trp | Val | Gly | Thr | Cys | Ser | Asp | Tyr | Pro | Lys | Gly | Asp |  |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |  |
| Ala | Ser | Thr | Gly | Trp | Asn | Ser | Val | Ser | Arg | Ile | Ile | Ile | Glu | Glu |  |
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Leu Pro Lys

<210> 353

<211> 480

<212> DNA

<213> Homo sapiens

<400> 353

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tccgggggttc tggcccctgc ggtgctcaca gacgatgttc cacaggagcc 150



cgtgccacg ctgtggaacg agccggccga gctgccgtcg ggagaaggcc 200  
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 gccccaccg tcgcgccagg acccgaggac agcaccgcgc aggagcggct 300  
 ggaccagggc ggccgggtcgc tggggcccg cgtatcgcg gccatcgtga 350  
 tcgccgcct gctggccacc tgcgtggtgc tggcgctcgt ggtcgtcgcg 400  
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<210> 354  
 <211> 121  
 <212> PRT  
 <213> Homo sapiens

<400> 354  
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 35 40 45  
 Glu Gly Pro Val Glu Ser Thr Ser Pro Gly Arg Glu Pro Val Asp  
 50 55 60  
 Thr Gly Pro Pro Ala Pro Thr Val Ala Pro Gly Pro Glu Asp Ser  
 65 70 75  
 Thr Ala Gln Glu Arg Leu Asp Gln Gly Gly Gly Ser Leu Gly Pro  
 80 85 90  
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 95 100 105  
 Val Val Leu Ala Leu Val Val Val Ala Leu Arg Lys Phe Ser Ala  
 110 115 120  
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| tctccaagaa | gttctccttc | taccgccacc | atgtgaactt | caagtctctg  | 200  |
| tgggtgggcg | acatccccgt | gtcaggggcg | ctgctcaccg | actggagcga  | 250  |
| cgacacgatg | aaggagctgc | acctggccat | ccccgccaag | atcaccggg   | 300  |
| agaagctgga | ccaagtggcg | acagcagtgt | accagatgat | ggatcagctg  | 350  |
| taccagggga | agatgtactt | ccccgggtat | ttccccaacg | agctgcgaaa  | 400  |
| catcttccgg | gagcaggtgc | acctcatcca | gaacgccatc | atcgaaaggc  | 450  |
| acctggcacc | aggcagctgg | ggaggagggc | agctctccag | ggagggaccc  | 500  |
| agcctagcac | ctgaaggatc | aatgccatca | ccccgcgggg | acctccccta  | 550  |
| agtagcccc  | agaggcgctg | ggagtgttgc | caccgccctc | ccctgaagtt  | 600  |
| tgtctcatct | cacgctgggg | gtcaacctgg | ggaccccttc | cctccggggc  | 650  |
| atggacacac | atacatgaaa | accaggccgc | atcgactgtc | agcaccgctg  | 700  |
| tggcatcttc | cagtacgaga | ccatctcctg | caacaactgc | acagactcgc  | 750  |
| acgtcgcttg | ctttggctat | aactgcgagt | agggctcagg | catcacaccc  | 800  |
| acccgtgcc  | gggcctact  | gtccctgggg | tcccaggctc | tccttgagg   | 850  |
| gggtccccg  | ccttccacct | ggctgtcatc | gggtagggcg | gggccgtggg  | 900  |
| ttcaggggcg | caccacttcc | aagcctgtgt | cccacaggtc | ctcggcgag   | 950  |
| tggaagtcat | ctgtccaggg | cctcctgaac | tacataaata | actggcaca   | 1000 |
| gtaagtcccc | tcctcaaacc | aacacaggca | gtgtgtgtat | gtgagcacct  | 1050 |
| cgtgggtgag | tatgtgtggg | gcacaggctg | gctccctcag | ctcccacgtc  | 1100 |
| ctagaggggc | tcccgaggag | gtggaacctc | aaccagctc  | tgcgaggag   | 1150 |
| gcggctgcag | tccttttctc | cctcaaagg  | ctccgaccct | cagctggagg  | 1200 |
| cgggcatctt | tcctaaagg  | tcccataagg | gtctggttcc | accccatccc  | 1250 |
| aggtctgtgg | tcagagcctg | ggagggttcc | ctacgatgg  | taggggtgcc  | 1300 |
| ccatggagg  | gctgactgcc | ccacattgcc | tttcagacag | gacacgagca  | 1350 |
| tgaggtaagg | ccgccctgac | ctggacttca | gggggagggg | gtaaagggag  | 1400 |
| agaggagggg | ggctagggg  | tcctctagat | cagtgggggc | actgcagggtg | 1450 |
| gggtctctcc | tatacctggg | acacctgctg | gatgtcacct | ctgcaaccac  | 1500 |



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<210> 356

<211> 157

<212> PRT

<213> Homo. sapiens

<400> 356

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 20 25 30

Phe Tyr Arg His His Val Asn Phe Lys Ser Trp Trp Val Gly Asp  
 35 40 45

Ile Pro Val Ser Gly Ala Leu Leu Thr Asp Trp Ser Asp Asp Thr  
 50 55 60

Met Lys Glu Leu His Leu Ala Ile Pro Ala Lys Ile Thr Arg Glu  
 65 70 75

Lys Leu Asp Gln Val Ala Thr Ala Val Tyr Gln Met Met Asp Gln  
 80 85 90

Leu Tyr Gln Gly Lys Met Tyr Phe Pro Gly Tyr Phe Pro Asn Glu  
 95 100 105

Leu Arg Asn Ile Phe Arg Glu Gln Val His Leu Ile Gln Asn Ala  
 110 115 120

Ile Ile Glu Arg His Leu Ala Pro Gly Ser Trp Gly Gly Gly Gln



|   |     |     |
|---|-----|-----|
| 125   | 130 | 135 |
| Leu Ser Arg Glu Gly Pro Ser Leu Ala Pro Glu Gly Ser Met Pro |     |     |
| 140   | 145 | 150 |
| Ser Pro Arg Gly Asp Leu Pro                                 |     |     |
| 155   |     |     |

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 <211> 1536  
 <212> DNA  
 <213> Homo sapiens

<400> 357  
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 ctctagatga cgagtgggat aactgcccc cagcagaagt ttccgtagag 750  
 catgtgcaaa acttttgtga tggattccta agtggaat tgttgaaaga 800  
 aaatcgtgaa tcagaaggaa agactccaaa ggtggaactc tgacttctcc 850  
 ttggaactac atatggccaa gtatctactt tatgcaaagt aaaaaggcac 900  
 aactcaaate tcagagacac taaacaacag gatcactagg cctgccaacc 950  
 acacacacac gcacgtgcac acacgcacgc acgcgtgcac acacacacgc 1000  
 gcacacacac acacacacag agcttcattt cctgtcttaa aatctcgttt 1050  
 tctcttcttc cttcttttaa atttcatatc ctcaactcct atccaatttc 1100



```
cttcttatcg tgcattcata ctctgtaagc ccatctgtaa cacacctaga 1150
tcaaggcttt aagagactca ctgtgatgcc tctatgaaag agaggcattc 1200
ctagagaaag attgttccaa tttgtcattt aatatcaagt ttgtatactg 1250
cacatgactt acacacaaca tagttcctgc tcttttaagg ttacctaagg 1300
gttgaaactc taccttcttt cataagcaca tgtccgtctc tgactcagga 1350
tcaaaaacca aaggatggtt ttaaacacct ttgtgaaatt gtctttttgc 1400
cagaagttaa aggctgtctc caagtccttg aactcagcag aaatagacca 1450
tgtgaaaact ccatgcttgg ttagcatctc caactcccta tgtaaataca 1500
caacctgcat aataaataaa aggcaatcat gttata 1536
```

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<210> 358
<211> 273
<212> PRT
<213> Homo sapiens
```

|           |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| <400> 358 |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Met       | Glu | Ala | Ala | Pro | Ser | Arg | Phe | Met | Phe | Leu | Leu | Phe | Leu | Leu |
| 1         |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Thr       | Cys | Glu | Leu | Ala | Ala | Glu | Val | Ala | Ala | Glu | Val | Glu | Lys | Ser |
|           |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ser       | Asp | Gly | Pro | Gly | Ala | Ala | Gln | Glu | Pro | Thr | Trp | Leu | Thr | Asp |
|           |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Val       | Pro | Ala | Ala | Met | Glu | Phe | Ile | Ala | Ala | Thr | Glu | Val | Ala | Val |
|           |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ile       | Gly | Phe | Phe | Gln | Asp | Leu | Glu | Ile | Pro | Ala | Val | Pro | Ile | Leu |
|           |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| His       | Ser | Met | Val | Gln | Lys | Phe | Pro | Gly | Val | Ser | Phe | Gly | Ile | Ser |
|           |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Thr       | Asp | Ser | Glu | Val | Leu | Thr | His | Tyr | Asn | Ile | Thr | Gly | Asn | Thr |
|           |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Ile       | Cys | Leu | Phe | Arg | Leu | Val | Asp | Asn | Glu | Gln | Leu | Asn | Leu | Glu |
|           |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Asp       | Glu | Asp | Ile | Glu | Ser | Ile | Asp | Ala | Thr | Lys | Leu | Ser | Arg | Phe |
|           |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ile       | Glu | Ile | Asn | Ser | Leu | His | Met | Val | Thr | Glu | Tyr | Asn | Pro | Val |
|           |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Thr       | Val | Ile | Gly | Leu | Phe | Asn | Ser | Val | Ile | Gln | Ile | His | Leu | Leu |
|           |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |



**SECRET**

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<210> 359
<211> 24
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 359
ccagcagtgcc ccatctcca tagc 24
```

```
<210> 360
<211> 20
<212> DNA
<213> Artificial Sequence
```

<220>  
<223> Synthetic oligonucleotide probe

```
<400> 360
      tgacgagtgg gatacactgc 20
```

```
<210> 361
<211> 24
<212> DNA
<213> Artificial Sequence
```

<220>  
<223> Synthetic oligonucleotide probe

```
<400> 361
gctctacgga aacttctgct gtgg 24
```



<210> 362  
 <211> 50  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 362  
 attcccaggc gtgtcatttg ggatcagcac tgattctgag gttctgacac 50

<210> 363  
 <211> 1777  
 <212> DNA  
 <213> Homo sapiens

<400> 363  
 ggagagccgc ggctgggacc ggagtgggga gcgcggcgtg gaggtgccac 50  
 ccggcgcggg tggcggagag atcagaagcc tcttcccaa gccgagccaa 100  
 cctcagcggg gaccgggct cagggaacgc gggcggcgg cggcgactgc 150  
 agtggctgga cgatggcagc gtccgccgga gccggggcgg tgattgcagc 200  
 cccagacagc cggcgctggc tgtggtcggg gctggcggcg gcgcttgggc 250  
 tcttgacagc tggagtatca gccttggaag tatatacgcc aaaagaaatc 300  
 ttctgtgcaa atggtacaca agggaagctg acctgcaagt tcaagtctac 350  
 tagtacgact ggcgggttga cctcagtcct ctggagcttc cagccagagg 400  
 gggccgacac tactgtgtcg tttttccact actcccaagg gcaagtgtac 450  
 cttgggaatt atccaccatt taaagacaga atcagctggg ctggagacct 500  
 tgacaagaaa gatgcatcaa tcaacataga aaatatgcag tttatacaca 550  
 atggcaccta tatctgtgat gtcaaaaacc ctctgacat cgttgtccag 600  
 cctggacaca ttaggctcta tgtcgtagaa aaagagaatt tgctgtgtt 650  
 tccagtttgg gtagtggtgg gcatagttac tgctgtggc ctaggctctca 700  
 ctctgctcat cagcatgatt ctggctgtcc tctatagaag gaaaaactct 750  
 aaacgggatt aactggctg cagtacatca gagagtttgt caccagttaa 800  
 gcaggctcct cggaagtccc cctccgacac tgagggtctt gttaaagagtc 850  
 tgcttcttgg atctcaccag ggcccagtca tatatgcaca gttagaccac 900  
 tccggcggac atcacagtga caagattaac aagtcagagt ctgtggtgta 950  
 tgcggatatc cgaaagaatt aagagaatac ctagaacata tctcagcaa 1000



gaaacaaaac caaactggac tctcgtgcag aaaatgtagc ccattaccac 1050  
atgtagcctt ggagaccag gcaaggacaa gtacacgtgt actcacagag 1100  
ggagagaaag atgtgtacaa aggatatgta taaatattct atttagtcat 1150  
cctgatatga ggagccagtg ttgcatgatg aaaagatggg atgattctac 1200  
atatgtaccc attgtcttgc tgtttttgta ctttcttttc aggtcattta 1250  
caattgggag atttcagaaa cattcctttc accatcattt agaaatgggt 1300  
tgccttaatg gagacaatag cagatcctgt agtattttcca gtagacatgg 1350  
ccttttaatc taagggttta agactgatta gtcttagcat ttactgtagt 1400  
tggaggatgg agatgctatg atggaagcat acccaggggtg gccttttagca 1450  
cagtatcagt accatttatt tgtctgccgc ttttaaaaaa taccattggg 1500  
ctatgccact tgaaaacaat ttgagaagtt tttttgaagt ttttctcact 1550  
aaaatatggg gcaattgtta gccttacatg ttgtgtagac ttactttaag 1600  
tttgcaccct tgaaatgtgt catatcaatt tctggattca taatagcaag 1650  
attagcaaag gataaatgcc gaaggctcact tcattctgga cacagttgga 1700  
tcaatactga ttaagtagaa aatccaagct ttgcttgaga acttttgtaa 1750  
cgtggagagt aaaaagtatc ggtttta 1777

<210> 364  
<211> 269  
<212> PRT  
<213> Homo sapiens

<400> 364  
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Ser Arg Arg Trp Leu Trp Ser Val Leu Ala Ala Leu Gly Leu  
20 25 30  
Leu Thr Ala Gly Val Ser Ala Leu Glu Val Tyr Thr Pro Lys Glu  
35 40 45  
Ile Phe Val Ala Asn Gly Thr Gln Gly Lys Leu Thr Cys Lys Phe  
50 55 60  
Lys Ser Thr Ser Thr Thr Gly Gly Leu Thr Ser Val Ser Trp Ser  
65 70 75  
Phe Gln Pro Glu Gly Ala Asp Thr Thr Val Ser Phe Phe His Tyr  
80 85 90



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Ser | Gln | Gly | Gln | Val | Tyr | Leu | Gly | Asn | Tyr | Pro | Pro | Phe | Lys | Asp | 95  | 100 | 105 |
| Arg | Ile | Ser | Trp | Ala | Gly | Asp | Leu | Asp | Lys | Lys | Asp | Ala | Ser | Ile | 110 | 115 | 120 |
| Asn | Ile | Glu | Asn | Met | Gln | Phe | Ile | His | Asn | Gly | Thr | Tyr | Ile | Cys | 125 | 130 | 135 |
| Asp | Val | Lys | Asn | Pro | Pro | Asp | Ile | Val | Val | Gln | Pro | Gly | His | Ile | 140 | 145 | 150 |
| Arg | Leu | Tyr | Val | Val | Glu | Lys | Glu | Asn | Leu | Pro | Val | Phe | Pro | Val | 155 | 160 | 165 |
| Trp | Val | Val | Val | Gly | Ile | Val | Thr | Ala | Val | Val | Leu | Gly | Leu | Thr | 170 | 175 | 180 |
| Leu | Leu | Ile | Ser | Met | Ile | Leu | Ala | Val | Leu | Tyr | Arg | Arg | Lys | Asn | 185 | 190 | 195 |
| Ser | Lys | Arg | Asp | Tyr | Thr | Gly | Cys | Ser | Thr | Ser | Glu | Ser | Leu | Ser | 200 | 205 | 210 |
| Pro | Val | Lys | Gln | Ala | Pro | Arg | Lys | Ser | Pro | Ser | Asp | Thr | Glu | Gly | 215 | 220 | 225 |
| Leu | Val | Lys | Ser | Leu | Pro | Ser | Gly | Ser | His | Gln | Gly | Pro | Val | Ile | 230 | 235 | 240 |
| Tyr | Ala | Gln | Leu | Asp | His | Ser | Gly | Gly | His | His | Ser | Asp | Lys | Ile | 245 | 250 | 255 |
| Asn | Lys | Ser | Glu | Ser | Val | Val | Tyr | Ala | Asp | Ile | Arg | Lys | Asn |     | 260 | 265 |     |

&lt;210&gt; 365

&lt;211&gt; 1321

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 365

gccggctgtg cagagacgcc atgtaccggc tctgtgcagc agtgactgcc 50

cgggctgccg cccccggggg cttggcctca agctgcggac gacgcggggt 100

ccatcagcgc gccgggctgc cgcctctcgg ccacggctgg gtcggggggc 150

tcgggctggg gctggggctg gcgctcgggg tgaagctggc aggtgggctg 200

aggggcgcgg ccccggcgca gtccccgcg gccccgacc ctgaggcgtc 250

gcctctggcc gagccgccac aggagcagtc cctcgccccg tgggtctccgc 300

agaccccggc gccgccttgc tccaggtgct tcgccagagc catcgagagc 350

agccgcgacc tgctgcacag gatcaaggat gaggtggggc caccgggcat 400



agtggttgga gtttctgtag atggaaaaga agtctggtca gaaggtttag 450  
 gttatgctga tgttgagaac cgtgtacat gtaaaccaga gacagttatg 500  
 cgaattgcta gcatcagcaa aagtctcacc atggttgctc ttgccaaatt 550  
 gtgggaagca gggaaactgg atcttgatat tccagtacaa cattatgttc 600  
 ccgaattccc agaaaaagaa tatgaagggtg aaaagggttc tgtcacaaca 650  
 agattactga tttccatttt aagtgggaatt cgtcattatg aaaaggacat 700  
 aaaaaagggtg aaagaagaga aagcttataa agccttgaag atgatgaaag 750  
 agaatgttgc atttgagcaa gaaaaagaag gcaaaagtaa tgaaaaagaat 800  
 gattttacta aattttaaac agagcaggag aatgaagcca aatgccggaa 850  
 ttcaaacctt ggcaagaaaa agaatgattt tgaacaaggc gaattatatt 900  
 tgagagaaaa gtttgaaaat tcaattgaat ccctaagatt atttaaaaat 950  
 gatcctttgt tcttcaaacc tggtagtcag tttttgtatt caacttttgg 1000  
 ctatacccta ctggcagcca tagtagagag agcttcagga tgtaaattatt 1050  
 tggactatat gcagaaaata ttccatgact tggatatgct gacgactgtg 1100  
 caggaagaaa acgagccagt gatttacaat agagcaagggt aaatgaatac 1150  
 cttctgctgt gtctagctat atcgcatctt aacactatct tattaattaa 1200  
 aagtcaaatt ttctttgttt ccattccaaa atcaacctgc cacatttttg 1250  
 gagcttttct acatgtctgt tttctcatct gttaaagtga ggaagtaaaa 1300  
 catgtttata aagtaaaaaa a 1321

<210> 366

<211> 373

<212> PRT

<213> Homo sapiens

<400> 366

Met Tyr Arg Leu Leu Ser Ala Val Thr Ala Arg Ala Ala Ala Pro  
           1                  5                  10                  15

Gly Gly Leu Ala Ser Ser Cys Gly Arg Arg Gly Val His Gln Arg  
                   20                  25                  30

Ala Gly Leu Pro Pro Leu Gly His Gly Trp Val Gly Gly Leu Gly  
                   35                  40                  45

Leu Gly Leu Gly Leu Ala Leu Gly Val Lys Leu Ala Gly Gly Leu  
                   50                  55                  60



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|-----|
| Arg | Gly | Ala | Ala | Pro | Ala | Gln | Ser | Pro | Ala | Ala | Pro | Asp | Pro | Glu |  |     |
|     |     |     |     | 65  |     |     |     |     |     |     |     |     | 70  |     |  | 75  |
| Ala | Ser | Pro | Leu | Ala | Glu | Pro | Pro | Gln | Glu | Gln | Ser | Leu | Ala | Pro |  |     |
|     |     |     |     | 80  |     |     |     |     |     |     |     |     | 85  |     |  | 90  |
| Trp | Ser | Pro | Gln | Thr | Pro | Ala | Pro | Pro | Cys | Ser | Arg | Cys | Phe | Ala |  |     |
|     |     |     |     | 95  |     |     |     |     |     |     |     |     | 100 |     |  | 105 |
| Arg | Ala | Ile | Glu | Ser | Ser | Arg | Asp | Leu | Leu | His | Arg | Ile | Lys | Asp |  |     |
|     |     |     |     | 110 |     |     |     |     |     |     |     |     | 115 |     |  | 120 |
| Glu | Val | Gly | Ala | Pro | Gly | Ile | Val | Val | Gly | Val | Ser | Val | Asp | Gly |  |     |
|     |     |     |     | 125 |     |     |     |     |     |     |     |     | 130 |     |  | 135 |
| Lys | Glu | Val | Trp | Ser | Glu | Gly | Leu | Gly | Tyr | Ala | Asp | Val | Glu | Asn |  |     |
|     |     |     |     | 140 |     |     |     |     |     |     |     |     | 145 |     |  | 150 |
| Arg | Val | Pro | Cys | Lys | Pro | Glu | Thr | Val | Met | Arg | Ile | Ala | Ser | Ile |  |     |
|     |     |     |     | 155 |     |     |     |     |     |     |     |     | 160 |     |  | 165 |
| Ser | Lys | Ser | Leu | Thr | Met | Val | Ala | Leu | Ala | Lys | Leu | Trp | Glu | Ala |  |     |
|     |     |     |     | 170 |     |     |     |     |     |     |     |     | 175 |     |  | 180 |
| Gly | Lys | Leu | Asp | Leu | Asp | Ile | Pro | Val | Gln | His | Tyr | Val | Pro | Glu |  |     |
|     |     |     |     | 185 |     |     |     |     |     |     |     |     | 190 |     |  | 195 |
| Phe | Pro | Glu | Lys | Glu | Tyr | Glu | Gly | Glu | Lys | Val | Ser | Val | Thr | Thr |  |     |
|     |     |     |     | 200 |     |     |     |     |     |     |     |     | 205 |     |  | 210 |
| Arg | Leu | Leu | Ile | Ser | His | Leu | Ser | Gly | Ile | Arg | His | Tyr | Glu | Lys |  |     |
|     |     |     |     | 215 |     |     |     |     |     |     |     |     | 220 |     |  | 225 |
| Asp | Ile | Lys | Lys | Val | Lys | Glu | Glu | Lys | Ala | Tyr | Lys | Ala | Leu | Lys |  |     |
|     |     |     |     | 230 |     |     |     |     |     |     |     |     | 235 |     |  | 240 |
| Met | Met | Lys | Glu | Asn | Val | Ala | Phe | Glu | Gln | Glu | Lys | Glu | Gly | Lys |  |     |
|     |     |     |     | 245 |     |     |     |     |     |     |     |     | 250 |     |  | 255 |
| Ser | Asn | Glu | Lys | Asn | Asp | Phe | Thr | Lys | Phe | Lys | Thr | Glu | Gln | Glu |  |     |
|     |     |     |     | 260 |     |     |     |     |     |     |     |     | 265 |     |  | 270 |
| Asn | Glu | Ala | Lys | Cys | Arg | Asn | Ser | Lys | Pro | Gly | Lys | Lys | Lys | Asn |  |     |
|     |     |     |     | 275 |     |     |     |     |     |     |     |     | 280 |     |  | 285 |
| Asp | Phe | Glu | Gln | Gly | Glu | Leu | Tyr | Leu | Arg | Glu | Lys | Phe | Glu | Asn |  |     |
|     |     |     |     | 290 |     |     |     |     |     |     |     |     | 295 |     |  | 300 |
| Ser | Ile | Glu | Ser | Leu | Arg | Leu | Phe | Lys | Asn | Asp | Pro | Leu | Phe | Phe |  |     |
|     |     |     |     | 305 |     |     |     |     |     |     |     |     | 310 |     |  | 315 |
| Lys | Pro | Gly | Ser | Gln | Phe | Leu | Tyr | Ser | Thr | Phe | Gly | Tyr | Thr | Leu |  |     |
|     |     |     |     | 320 |     |     |     |     |     |     |     |     | 325 |     |  | 330 |
| Leu | Ala | Ala | Ile | Val | Glu | Arg | Ala | Ser | Gly | Cys | Lys | Tyr | Leu | Asp |  |     |
|     |     |     |     | 335 |     |     |     |     |     |     |     |     | 340 |     |  | 345 |



Tyr Met Gln Lys Ile Phe His Asp Leu Asp Met Leu Thr Thr Val  
350 355 360

Gln Glu Glu Asn Glu Pro Val Ile Tyr Asn Arg Ala Arg  
365 370

<210> 367

<211> 30

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 367

tggaagagaa gtctgggtcag aaggtttagg 30

<210> 368

<211> 25

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 368

catttggtt cattctcctg ctctg 25

<210> 369

<211> 28

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 369

aaacctcag aacaactcat ttgacacc 28

<210> 370

<211> 41

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 370

gtctcaccat gggtgctctt gccaaattgt gggaagcagg g 41

<210> 371

<211> 1150

<212> DNA

<213> Homo sapiens

<400> 371

gtgacactat agaagagcta tgacgtcgca tgcacgcgta cgtaagctcg 50



gaattcggct cgaggctggt gggaagaagc cgagatggcg gcagccagcg 100  
 ctggggcaac ccggtgctc ctgctcttgc tgatggcggt agcagcgccc 150  
 agtcgagccc ggggcagcgg ctgccgggcc gggactggtg cgcgaggggc 200  
 tggggcgga ggtcgagagg gcgaggcctg tggcacggtg gggctgctgc 250  
 tggagcactc atttgagatc gatgacagtg ccaacttccg gaagcggggc 300  
 tcaactgtct ggaaccagca ggatggtacc ttgtccctgt cacagcgcca 350  
 gctcagcgag gaggagcggg gccgactccg ggatgtggca gccctgaatg 400  
 gcctgtaccg ggtccggatc ccaaggcgac ccggggccct ggatggcctg 450  
 gaagctggtg gctatgtctc ctcccttgtc cctgcgtgct ccctggtgga 500  
 gtcgcacctg tcggaccagc tgaccctgca cgtggatgtg gccggcaacg 550  
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 gtggaggacg tggacctgga gctgttcaac acctcggtgc agctgcagcc 650  
 gcccaccaca gccccaggcc ctgagacggc ggccttcatt gagcgccctg 700  
 agatggaaca ggcccagaag gccagaacc cccaggagca gaagtccttc 750  
 ttgcgcaaat actggatgta catcattccc gtcgtcctgt tcctcatgat 800  
 gtcaggagcg ccagacaccg ggggccaggg tgggggtggg ggtgggggtg 850  
 gtggtggggg tagtggcctt tgctgtgtgc caccctccct gtaagtctat 900  
 ttaaaaacat cgacgataca ttgaaatgtg tgaacgtttt gaaaagctac 950  
 agcttccagc agccaaaagc aactgttggt ttggcaagac ggtcctgatg 1000  
 tacaagcttg attgaaattc actgctcact tgatacgta ttcagaaacc 1050  
 caaggaatgg ctgtcccat cctcatgtgg ctgtgtggag ctcagctgtg 1100  
 ttgtgtggca gtttattaaa ctgtcccca gatcgacacg caaaaaaaaa 1150

<210> 372

<211> 269

<212> PRT

<213> Homo sapiens

<400> 372

Met Ala Ala Ala Ser Ala Gly Ala Thr Arg Leu Leu Leu Leu Leu  
           1                  5                  10                  15

Leu Met Ala Val Ala Ala Pro Ser Arg Ala Arg Gly Ser Gly Cys  
                   20                  25                  30



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Arg | Ala | Gly | Thr | Gly | Ala | Arg | Gly | Ala | Gly | Ala | Glu | Gly | Arg | Glu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Gly | Glu | Ala | Cys | Gly | Thr | Val | Gly | Leu | Leu | Leu | Glu | His | Ser | Phe |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Glu | Ile | Asp | Asp | Ser | Ala | Asn | Phe | Arg | Lys | Arg | Gly | Ser | Leu | Leu |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Trp | Asn | Gln | Gln | Asp | Gly | Thr | Leu | Ser | Leu | Ser | Gln | Arg | Gln | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Ser | Glu | Glu | Glu | Arg | Gly | Arg | Leu | Arg | Asp | Val | Ala | Ala | Leu | Asn |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Gly | Leu | Tyr | Arg | Val | Arg | Ile | Pro | Arg | Arg | Pro | Gly | Ala | Leu | Asp |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Gly | Leu | Glu | Ala | Gly | Gly | Tyr | Val | Ser | Ser | Phe | Val | Pro | Ala | Cys |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ser | Leu | Val | Glu | Ser | His | Leu | Ser | Asp | Gln | Leu | Thr | Leu | His | Val |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Asp | Val | Ala | Gly | Asn | Val | Val | Gly | Val | Ser | Val | Val | Thr | His | Pro |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Gly | Gly | Cys | Arg | Gly | His | Glu | Val | Glu | Asp | Val | Asp | Leu | Glu | Leu |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Phe | Asn | Thr | Ser | Val | Gln | Leu | Gln | Pro | Pro | Thr | Thr | Ala | Pro | Gly |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Pro | Glu | Thr | Ala | Ala | Phe | Ile | Glu | Arg | Leu | Glu | Met | Glu | Gln | Ala |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Gln | Lys | Ala | Lys | Asn | Pro | Gln | Glu | Gln | Lys | Ser | Phe | Phe | Ala | Lys |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Tyr | Trp | Met | Tyr | Ile | Ile | Pro | Val | Val | Leu | Phe | Leu | Met | Met | Ser |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Gly | Ala | Pro | Asp | Thr | Gly | Gly | Gln | Gly | Gly | Gly | Gly | Gly | Gly | Gly |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gly | Gly | Gly | Gly | Ser | Gly | Leu | Cys | Cys | Val | Pro | Pro | Ser | Leu |     |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     |     |

<210> 373  
 <211> 1706  
 <212> DNA  
 <213> Homo sapiens

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<210> 374
<211> 450
<212> PRT
<213> Homo sapiens
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|          |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|----------|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Met<br>1 | Leu | Val | Thr | Ala<br>5   | Tyr | Leu | Ala | Phe | Val<br>10  | Gly | Leu | Leu | Ala | Ser<br>15  |
| Cys      | Leu | Gly | Leu | Glu<br>20  | Leu | Ser | Arg | Cys | Arg<br>25  | Ala | Lys | Pro | Pro | Gly<br>30  |
| Arg      | Ala | Cys | Ser | Asn<br>35  | Pro | Ser | Phe | Leu | Arg<br>40  | Phe | Gln | Leu | Asp | Phe<br>45  |
| Tyr      | Gln | Val | Tyr | Phe<br>50  | Leu | Ala | Leu | Ala | Ala<br>55  | Asp | Trp | Leu | Gln | Ala<br>60  |
| Pro      | Tyr | Leu | Tyr | Lys<br>65  | Leu | Tyr | Gln | His | Tyr<br>70  | Tyr | Phe | Leu | Glu | Gly<br>75  |
| Gln      | Ile | Ala | Ile | Leu<br>80  | Tyr | Val | Cys | Gly | Leu<br>85  | Ala | Ser | Thr | Val | Leu<br>90  |
| Phe      | Gly | Leu | Val | Ala<br>95  | Ser | Ser | Leu | Val | Asp<br>100 | Trp | Leu | Gly | Arg | Lys<br>105 |
| Asn      | Ser | Cys | Val | Leu<br>110 | Phe | Ser | Leu | Thr | Tyr<br>115 | Ser | Leu | Cys | Cys | Leu<br>120 |
| Thr      | Lys | Leu | Ser | Gln<br>125 | Asp | Tyr | Phe | Val | Leu<br>130 | Leu | Val | Gly | Arg | Ala<br>135 |
| Leu      | Gly | Gly | Leu | Ser<br>140 | Thr | Ala | Leu | Leu | Phe<br>145 | Ser | Ala | Phe | Glu | Ala<br>150 |
| Trp      | Tyr | Ile | His | Glu<br>155 | His | Val | Glu | Arg | His<br>160 | Asp | Phe | Pro | Ala | Glu<br>165 |
| Trp      | Ile | Pro | Ala | Thr<br>170 | Phe | Ala | Arg | Ala | Ala<br>175 | Phe | Trp | Asn | His | Val<br>180 |
| Leu      | Ala | Val | Val | Ala<br>185 | Gly | Val | Ala | Ala | Glu<br>190 | Ala | Val | Ala | Ser | Trp<br>195 |
| Ile      | Gly | Leu | Gly | Pro<br>200 | Val | Ala | Pro | Phe | Val<br>205 | Ala | Ala | Ile | Pro | Leu<br>210 |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Leu | Ala | Leu | Ala | Gly | Ala | Leu | Ala | Leu | Arg | Asn | Trp | Gly | Glu | Asn |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Tyr | Asp | Arg | Gln | Arg | Ala | Phe | Ser | Arg | Thr | Cys | Ala | Gly | Gly | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Arg | Cys | Leu | Leu | Ser | Asp | Arg | Arg | Val | Leu | Leu | Leu | Gly | Thr | Ile |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |
| Gln | Ala | Leu | Phe | Glu | Ser | Val | Ile | Phe | Ile | Phe | Val | Phe | Leu | Trp |
|     |     |     |     | 260 |     |     |     |     | 265 |     |     |     |     | 270 |
| Thr | Pro | Val | Leu | Asp | Pro | His | Gly | Ala | Pro | Leu | Gly | Ile | Ile | Phe |
|     |     |     |     | 275 |     |     |     |     | 280 |     |     |     |     | 285 |
| Ser | Ser | Phe | Met | Ala | Ala | Ser | Leu | Leu | Gly | Ser | Ser | Leu | Tyr | Arg |
|     |     |     |     | 290 |     |     |     |     | 295 |     |     |     |     | 300 |
| Ile | Ala | Thr | Ser | Lys | Arg | Tyr | His | Leu | Gln | Pro | Met | His | Leu | Leu |
|     |     |     |     | 305 |     |     |     |     | 310 |     |     |     |     | 315 |
| Ser | Leu | Ala | Val | Leu | Ile | Val | Val | Phe | Ser | Leu | Phe | Met | Leu | Thr |
|     |     |     |     | 320 |     |     |     |     | 325 |     |     |     |     | 330 |
| Phe | Ser | Thr | Ser | Pro | Gly | Gln | Glu | Ser | Pro | Val | Glu | Ser | Phe | Ile |
|     |     |     |     | 335 |     |     |     |     | 340 |     |     |     |     | 345 |
| Ala | Phe | Leu | Leu | Ile | Glu | Leu | Ala | Cys | Gly | Leu | Tyr | Phe | Pro | Ser |
|     |     |     |     | 350 |     |     |     |     | 355 |     |     |     |     | 360 |
| Met | Ser | Phe | Leu | Arg | Arg | Lys | Val | Ile | Pro | Glu | Thr | Glu | Gln | Ala |
|     |     |     |     | 365 |     |     |     |     | 370 |     |     |     |     | 375 |
| Gly | Val | Leu | Asn | Trp | Phe | Arg | Val | Pro | Leu | His | Ser | Leu | Ala | Cys |
|     |     |     |     | 380 |     |     |     |     | 385 |     |     |     |     | 390 |
| Leu | Gly | Leu | Leu | Val | Leu | His | Asp | Ser | Asp | Arg | Lys | Thr | Gly | Thr |
|     |     |     |     | 395 |     |     |     |     | 400 |     |     |     |     | 405 |
| Arg | Asn | Met | Phe | Ser | Ile | Cys | Ser | Ala | Val | Met | Val | Met | Ala | Leu |
|     |     |     |     | 410 |     |     |     |     | 415 |     |     |     |     | 420 |
| Leu | Ala | Val | Val | Gly | Leu | Phe | Thr | Val | Val | Arg | His | Asp | Ala | Glu |
|     |     |     |     | 425 |     |     |     |     | 430 |     |     |     |     | 435 |
| Leu | Arg | Val | Pro | Ser | Pro | Thr | Glu | Glu | Pro | Tyr | Ala | Pro | Glu | Leu |
|     |     |     |     | 440 |     |     |     |     | 445 |     |     |     |     | 450 |

<210> 375

<211> 1098 .

<212> DNA

<213> Homo sapiens

<400> 375

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 gctccccgcg tgcgtcgcgg cccacggctt ccgtatccat gattatttgt 150  
 actttcaagt gctgagtcct ggggacattc gatacatctt cacagccaca 200  
 cctgccaagg actttggtgg tatctttcac acaaggatatg agcagattca 250  
 ccttgcccc gctgaacctc cagaggcctg cggggaactc agcaacgggtt 300  
 tcttcatcca ggaccagatt gctctggtgg agaggggggg ctgctccttc 350  
 ctctccaaga ctcggtggt ccaggagcac ggcgggcggg cggtgatcat 400  
 ctctgacaac gcagttgaca atgacagctt ctacgtggag atgatccagg 450  
 acagtacca gcgcacagct gacatccccg cctcttctct gctcggccga 500  
 gacggctaca tgatccgcgc ctctctggaa cagcatgggc tgccatgggc 550  
 catcatttcc atcccagtca atgtcaccag catccccacc tttgagctgc 600  
 tgcaaccgcc ctggaccttc tggtagaaga gtttgtcca cattccagcc 650  
 ataagtgact ctgagctggg aaggggaaac ccaggaattt tgctacttgg 700  
 aatttgagga tagcatctgg ggacaagtgg agccaggtag aggaaaaggg 750  
 tttgggcgtt gctaggctga aaggaagcc acaccactgg ccttcccttc 800  
 cccaggggccc ccaagggtgt ctcatgctac aagaagaggc aagagacagg 850  
 cccaggggt tctggctaga acccgaaaca aaaggagctg aaggcagggtg 900  
 gctgagagc catctgtgac ctgtcacact cacctggctc cagcctcccc 950  
 taccagggt ctctgcacag tgaccttcac agcagttggt ggagtgggtt 1000  
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<210> 376

<211> 188

<212> PRT

<213> Homo sapiens

<400> 376

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Pro Ala Cys Val Ala Ala His Gly Phe Arg Ile His Asp Tyr Leu  
 20 25 30

Tyr Phe Gln Val Leu Ser Pro Gly Asp Ile Arg Tyr Ile Phe Thr  
 35 40 45



|     |     |     |     |            |     |     |     |     |            |     |     |     |     |            |
|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|-----|-----|-----|-----|------------|
| Ala | Thr | Pro | Ala | Lys<br>50  | Asp | Phe | Gly | Gly | Ile<br>55  | Phe | His | Thr | Arg | Tyr<br>60  |
| Glu | Gln | Ile | His | Leu<br>65  | Val | Pro | Ala | Glu | Pro<br>70  | Pro | Glu | Ala | Cys | Gly<br>75  |
| Glu | Leu | Ser | Asn | Gly<br>80  | Phe | Phe | Ile | Gln | Asp<br>85  | Gln | Ile | Ala | Leu | Val<br>90  |
| Glu | Arg | Gly | Gly | Cys<br>95  | Ser | Phe | Leu | Ser | Lys<br>100 | Thr | Arg | Val | Val | Gln<br>105 |
| Glu | His | Gly | Gly | Arg<br>110 | Ala | Val | Ile | Ile | Ser<br>115 | Asp | Asn | Ala | Val | Asp<br>120 |
| Asn | Asp | Ser | Phe | Tyr<br>125 | Val | Glu | Met | Ile | Gln<br>130 | Asp | Ser | Thr | Gln | Arg<br>135 |
| Thr | Ala | Asp | Ile | Pro<br>140 | Ala | Leu | Phe | Leu | Leu<br>145 | Gly | Arg | Asp | Gly | Tyr<br>150 |
| Met | Ile | Arg | Arg | Ser<br>155 | Leu | Glu | Gln | His | Gly<br>160 | Leu | Pro | Trp | Ala | Ile<br>165 |
| Ile | Ser | Ile | Pro | Val<br>170 | Asn | Val | Thr | Ser | Ile<br>175 | Pro | Thr | Phe | Glu | Leu<br>180 |
| Leu | Gln | Pro | Pro | Trp<br>185 | Thr | Phe | Trp |     |            |     |     |     |     |            |

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<210> 377
<211> 496
<212> DNA
<213> Homo sapiens
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<220>  
<221> unsure  
<222> 396  
<223> unknown base
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ctgaacaaga tggtaagca agtgactggg aaaatgccca tcctctccta 150
ctggccctac ggctgtcact gcggactagg tggcagaggc caacccaaag 200
atgccacgga ctggtgctgc cagacccatg actgctgcta tgaccacctg 250
aagaccaggg ggtgcggcat ctacaaggac aacaacaaaa gcagcataca 300
ttgtatggat ttatctcaac gctattgttt aatggctgtg tttaatgtga 350
tctatctgga aaatgaggac tccgaataaa aagctattac tawttnaaaa 400
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<211> 45  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

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<210> 382  
 <211> 764  
 <212> DNA  
 <213> Homo sapiens

<400> 382  
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 ggcgatgtgg aggggtgccc gcacaaccag acgcccagtc acaggcgaga 100  
 gccctgggat gcaccggcca gaggccatgc tgctgctgct cacgcttgcc 150  
 ctcttggggg gccccacctg ggcagggaag atgtatggcc ctggaggagg 200  
 caagtatttc agcaccactg aagactacga ccatgaaatc acagggctgc 250  
 ggggtgtctgt aggtcttctc ctgggtgaaa gtgtccaggt gaaacttga 300  
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 ctttctcccg gggtatggtc atgtacacca gcaaggaccg ctatttctat 450  
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 gcagggtgctg gtgggcatct atggccagta tcaactcctt ggcatcaaga 550  
 gcattggctt tgaatggaat tatccactag aggagccgac cactgagcca 600  
 ccagttaatc tcacatactc agcaaactca ccogtgggtc gctaggggtg 650  
 ggtatggggc catccgagct gaggccatct gtgtggtggt ggctgatggt 700  
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<210> 383  
 <211> 178  
 <212> PRT  
 <213> Homo sapiens

<400> 383  
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 1 5 10 15



|   |     |     |     |
|---|-----|-----|-----|
| Leu Gly Gly Pro Thr Trp Ala Gly Lys Met Tyr Gly Pro Gly Gly | 20  | 25  | 30  |
| Gly Lys Tyr Phe Ser Thr Thr Glu Asp Tyr Asp His Glu Ile Thr | 35  | 40  | 45  |
| Gly Leu Arg Val Ser Val Gly Leu Leu Leu Val Lys Ser Val Gln | 50  | 55  | 60  |
| Val Lys Leu Gly Asp Ser Trp Asp Val Lys Leu Gly Ala Leu Gly | 65  | 70  | 75  |
| Gly Asn Thr Gln Glu Val Thr Leu Gln Pro Gly Glu Tyr Ile Thr | 80  | 85  | 90  |
| Lys Val Phe Val Ala Phe Gln Ala Phe Leu Arg Gly Met Val Met | 95  | 100 | 105 |
| Tyr Thr Ser Lys Asp Arg Tyr Phe Tyr Phe Gly Lys Leu Asp Gly | 110 | 115 | 120 |
| Gln Ile Ser Ser Ala Tyr Pro Ser Gln Glu Gly Gln Val Leu Val | 125 | 130 | 135 |
| Gly Ile Tyr Gly Gln Tyr Gln Leu Leu Gly Ile Lys Ser Ile Gly | 140 | 145 | 150 |
| Phe Glu Trp Asn Tyr Pro Leu Glu Glu Pro Thr Thr Glu Pro Pro | 155 | 160 | 165 |
| Val Asn Leu Thr Tyr Ser Ala Asn Ser Pro Val Gly Arg         | 170 | 175 |     |

&lt;210&gt; 384

&lt;211&gt; 2379

&lt;212&gt; DNA

&lt;213&gt; Homo sapiens

&lt;400&gt; 384

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atacagatgt ggcagctcag gtagcccaa attgcttgga agaatacatc 150
atgtttttcg ataagaagaa attgtaggat ccagtttttt ttttaaccgc 200
ccctcccca cccccaaaa aaactgtaaa gatgcaaaaa cgtaatatcc 250
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tgttgggatt tatttgttct tggagtgttc tgcgtggctg gcaaagaata 350
atgttc meta atcggtccat ctccaagggt gtccaatttt tcttcctggg 400
tgtcagcgag ccctgactca ctacagtgca gctgacagggt gctgtcatgc 450

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aactggcccc taagccaaag caaaagacct aaggacgacc tttgaacaat 500  
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cgaggatgcc ctaagggtg taggtgtgaa ggcaaatg tatattgtga 650  
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gtttgtccct tcgctataac agccttcaaa aacttaagta taatcaattt 750  
aaagggctca accagctcac ctggctatac cttgaccata accatatcag 800  
caatattgac gaaaatgctt ttaatggaat acgcagactc aaagagctga 850  
ttcttagttc caatagaatc tcctattttc ttaacaatac cttcagacct 900  
gtgacaaatt tacggaactt ggatctgtcc tataatcagc tgcattctct 950  
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aacctggaac ttttggacct gggatataac cggatccgaa gtttagccag 1100  
gaatgtcttt gctggcatga tcagactcaa agaacttcac ctggagcaca 1150  
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gggtctaaggg agaatacaat tatctgtgcc agtcccaaag agctgcaagg 1550  
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catgaagcag ctgcagcagc gctccctcat gcgaaggcac aggaaaaaga 1900



aaagacagtc cctaaagcaa atgactccca gcacccagga attttatgta 1950  
 gattataaac ccaccaacac ggagaccagc gagatgctgc tgaatgggac 2000  
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 tcataatact ggtcattttc ctctcatata taatcaaccc attgaaattt 2250  
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<210> 385  
 <211> 513  
 <212> PRT  
 <213> Homo sapiens

<400> 385  
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 Leu Val Ile Ala Pro Thr Val Leu Leu Thr Met Leu Ser Ser Ala  
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 Glu Arg Gly Cys Pro Lys Gly Cys Arg Cys Glu Gly Lys Met Val  
 35 40 45  
 Tyr Cys Glu Ser Gln Lys Leu Gln Glu Ile Pro Ser Ser Ile Ser  
 50 55 60  
 Ala Gly Cys Leu Gly Leu Ser Leu Arg Tyr Asn Ser Leu Gln Lys  
 65 70 75  
 Leu Lys Tyr Asn Gln Phe Lys Gly Leu Asn Gln Leu Thr Trp Leu  
 80 85 90  
 Tyr Leu Asp His Asn His Ile Ser Asn Ile Asp Glu Asn Ala Phe  
 95 100 105  
 Asn Gly Ile Arg Arg Leu Lys Glu Leu Ile Leu Ser Ser Asn Arg  
 110 115 120  
 Ile Ser Tyr Phe Leu Asn Asn Thr Phe Arg Pro Val Thr Asn Leu  
 125 130 135  
 Arg Asn Leu Asp Leu Ser Tyr Asn Gln Leu His Ser Leu Gly Ser  
 140 145 150



|                 |                     |                     |     |
|-----------------|---------------------|---------------------|-----|
| Glu Gln Phe Arg | Gly Leu Arg Lys Leu | Leu Ser Leu His Leu | Arg |
|                 | 155                 | 160                 | 165 |
| Ser Asn Ser Leu | Arg Thr Ile Pro Val | Arg Ile Phe Gln Asp | Cys |
|                 | 170                 | 175                 | 180 |
| Arg Asn Leu Glu | Leu Leu Asp Leu Gly | Tyr Asn Arg Ile Arg | Ser |
|                 | 185                 | 190                 | 195 |
| Leu Ala Arg Asn | Val Phe Ala Gly Met | Ile Arg Leu Lys Glu | Leu |
|                 | 200                 | 205                 | 210 |
| His Leu Glu His | Asn Gln Phe Ser Lys | Leu Asn Leu Ala Leu | Phe |
|                 | 215                 | 220                 | 225 |
| Pro Arg Leu Val | Ser Leu Gln Asn Leu | Tyr Leu Gln Trp Asn | Lys |
|                 | 230                 | 235                 | 240 |
| Ile Ser Val Ile | Gly Gln Thr Met Ser | Trp Thr Trp Ser Ser | Leu |
|                 | 245                 | 250                 | 255 |
| Gln Arg Leu Asp | Leu Ser Gly Asn Glu | Ile Glu Ala Phe Ser | Gly |
|                 | 260                 | 265                 | 270 |
| Pro Ser Val Phe | Gln Cys Val Pro Asn | Leu Gln Arg Leu Asn | Leu |
|                 | 275                 | 280                 | 285 |
| Asp Ser Asn Lys | Leu Thr Phe Ile Gly | Gln Glu Ile Leu Asp | Ser |
|                 | 290                 | 295                 | 300 |
| Trp Ile Ser Leu | Asn Asp Ile Ser Leu | Ala Gly Asn Ile Trp | Glu |
|                 | 305                 | 310                 | 315 |
| Cys Ser Arg Asn | Ile Cys Ser Leu Val | Asn Trp Leu Lys Ser | Phe |
|                 | 320                 | 325                 | 330 |
| Lys Gly Leu Arg | Glu Asn Thr Ile Ile | Cys Ala Ser Pro Lys | Glu |
|                 | 335                 | 340                 | 345 |
| Leu Gln Gly Val | Asn Val Ile Asp Ala | Val Lys Asn Tyr Ser | Ile |
|                 | 350                 | 355                 | 360 |
| Cys Gly Lys Ser | Thr Thr Glu Arg Phe | Asp Leu Ala Arg Ala | Leu |
|                 | 365                 | 370                 | 375 |
| Pro Lys Pro Thr | Phe Lys Pro Lys Leu | Pro Arg Pro Lys His | Glu |
|                 | 380                 | 385                 | 390 |
| Ser Lys Pro Pro | Leu Pro Pro Thr Val | Gly Ala Thr Glu Pro | Gly |
|                 | 395                 | 400                 | 405 |
| Pro Glu Thr Asp | Ala Asp Ala Glu His | Ile Ser Phe His Lys | Ile |
|                 | 410                 | 415                 | 420 |
| Ile Ala Gly Ser | Val Ala Leu Phe Leu | Ser Val Leu Val Ile | Leu |
|                 | 425                 | 430                 | 435 |



Leu Val Ile Tyr Val Ser Trp Lys Arg Tyr Pro Ala Ser Met Lys  
440 445 450

Gln Leu Gln Gln Arg Ser Leu Met Arg Arg His Arg Lys Lys Lys  
455 460 465

Arg Gln Ser Leu Lys Gln Met Thr Pro Ser Thr Gln Glu Phe Tyr  
470 475 480

Val Asp Tyr Lys Pro Thr Asn Thr Glu Thr Ser Glu Met Leu Leu  
485 490 495

Asn Gly Thr Gly Pro Cys Thr Tyr Asn Lys Ser Gly Ser Arg Glu  
500 505 510

Cys Glu Val

<210> 386

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 386

ctgggatctg aacagtttctg gggc 24

<210> 387

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 387

ggtccccagg acatggtctg tccc 24

<210> 388

<211> 48

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 388

gctgagttta catttacggt ctaactccct gagaaccatc cctgtgcg 48

<210> 389

<211> 1449

<212> DNA

<213> Homo sapiens

<400> 389



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 gcgatctcaa cgatagggat cttgtgtttg ccgctattcc agttggtgct 150  
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 gagacccga attgattctc acaggcgcac catggcagtt tttgctgttg 350  
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 ggaattcacc ttcaaactca aaccctgac ctatatcctg ttctgctcc 450  
 atgttttggc cctttaggct cccacctcc atatgaagaa attgtaaaaa 500  
 caacctgatt ttaggtgtgg attatcaatt taaagtatta acgacatctg 550  
 taattccaaa acatcaaatt taggaatagt tatttcagtt gttggaaatg 600  
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 attaattgct ctccactagt atccaaacag gcaacaatta ggtgctggaa 800  
 gtagtttcca tcacatttag gactccactg cagtatacag cacaccattt 850  
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 agatagtatt tgaatgaagg tgaggggaga gagtaggaaa aagaaaagtt 1000  
 tggagttgaa gggtaaagga taaatgaaga ggaaaaggaa aagattacaa 1050  
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 cagcatcatg ctaagaacct tcggcatagg tatctgttcc catgaggact 1300  
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<210> 390  
 <211> 146  
 <212> PRT  
 <213> Homo sapiens

<400> 390  
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 Ile Gly Ile Leu Cys Leu Pro Leu Phe Gln Leu Val Leu Ser Asp  
                   20                  25                  30  
 Leu Pro Cys Glu Glu Asp Glu Met Cys Val Asn Tyr Asn Asp Gln  
                   35                  40                  45  
 His Pro Asn Gly Trp Tyr Ile Trp Ile Leu Leu Leu Leu Val Leu  
                   50                  55                  60  
 Val Ala Ala Leu Leu Cys Gly Ala Val Val Leu Cys Leu Gln Cys  
                   65                  70                  75  
 Trp Leu Arg Arg Pro Arg Ile Asp Ser His Arg Arg Thr Met Ala  
                   80                  85                  90  
 Val Phe Ala Val Gly Asp Leu Asp Ser Ile Tyr Gly Thr Glu Ala  
                   95                  100                  105  
 Ala Val Ser Pro Thr Val Gly Ile His Leu Gln Thr Gln Thr Pro  
                   110                  115                  120  
 Asp Leu Tyr Pro Val Pro Ala Pro Cys Phe Gly Pro Leu Gly Ser  
                   125                  130                  135  
 Pro Pro Pro Tyr Glu Glu Ile Val Lys Thr Thr  
                   140                  145

<210> 391  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 391  
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<210> 392  
 <211> 23  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 392



cctaaacatg gagcaggaac agg 23

<210> 393

<211> 47

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 393

ccagttggtg ctctcggacc taccatgcga agaagatgaa atgtgtg 47

<210> 394

<211> 2340

<212> DNA

<213> Homo sapiens

<400> 394

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gacgcagctg acgcccgtt attagctctc gctgcgtcgc cccggctcag 150

aagctccgtg gcgggggcga ccgtgacgag aagcccacgg ccagctcagt 200

tctctttctac tttgggagag agagaaagtc agatgccctt tttaaactcc 250

ctcttcaaaa ctcatctcct ggggtgactga gttaatagag tggatacaac 300

cttgctgaag atgaagaata tacaatattg aggatatttt tttctttttt 350

ttttcaagtc ttgatttgtg gcttacctca agttaccatt tttcagtcaa 400

gtctgtttgt ttgcttcttc agaaatgttt tttacaatct caagaaaaaa 450

tatgtcccag aaattgagtt tactgttgct tgtatttgga ctcatgtggg 500

gattgatgtt actgcactat acttttcaac aaccaagaca tcaaagcagt 550

gtcaagttac gtgagcaaact actagactta agcaaaagat atgttaaagc 600

tctagcagag gaaaataaga acacagtggg tgtcgagaac ggtgcttcta 650

tggcaggata tgcggatctg aaaagaacaa ttgctgtcct tctggatgac 700

atattgcaac gattggtgaa gctggagaac aaagttgact atattgttgt 750

gaatggctca gcagccaaca ccaccaatgg tactagtggg aatttggtgc 800

cagtaaccac aaataaaaga acgaatgtct cgggcagtat cagatagcag 850

ttgaaaatca ccttgtgtg ctccatccac tgtggattat atcctatggc 900

agaaaagctt tataattgct ggcttaggac agagcaatac tttacaataa 950



aagctctaca catttttcaag gagtatgctg gattcatgga actctaattc 1000  
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aatgctgtac tatgtcctta aagagaattt ggtaacttgg ttgatgtggt 1100  
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<211> 140  
 <212> PRT  
 <213> Homo sapiens

<400> 395

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Phe | Phe | Thr | Ile | Ser | Arg | Lys | Asn | Met | Ser | Gln | Lys | Leu | Ser |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Leu | Leu | Leu | Val | Phe | Gly | Leu | Ile | Trp | Gly | Leu | Met | Leu | Leu |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| His | Tyr | Thr | Phe | Gln | Gln | Pro | Arg | His | Gln | Ser | Ser | Val | Lys | Leu |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Arg | Glu | Gln | Ile | Leu | Asp | Leu | Ser | Lys | Arg | Tyr | Val | Lys | Ala | Leu |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Ala | Glu | Glu | Asn | Lys | Asn | Thr | Val | Asp | Val | Glu | Asn | Gly | Ala | Ser |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Met | Ala | Gly | Tyr | Ala | Asp | Leu | Lys | Arg | Thr | Ile | Ala | Val | Leu | Leu |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Asp | Asp | Ile | Leu | Gln | Arg | Leu | Val | Lys | Leu | Glu | Asn | Lys | Val | Asp |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Tyr | Ile | Val | Val | Asn | Gly | Ser | Ala | Ala | Asn | Thr | Thr | Asn | Gly | Thr |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Ser | Gly | Asn | Leu | Val | Pro | Val | Thr | Thr | Asn | Lys | Arg | Thr | Asn | Val |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Ser | Gly | Ser | Ile | Arg |     |     |     |     |     |     |     |     |     |     |
|     |     |     |     | 140 |     |     |     |     |     |     |     |     |     |     |

<210> 396  
 <211> 2639  
 <212> DNA  
 <213> Homo sapiens

<400> 396

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 accttcggcc ttttcgacag cttcagcctg actcgggtgg attgtagcgg 200  
 cctgggcccc cacatcatgc cggtgcccat cctctggac acagcccaact 250  
 tggacctgtc ctccaaccgg ctggagatgg tgaatgagtc ggtgttggcg 300  
 gggccgggct acacgacgtt ggctggcctg gatctcagcc acaacctgct 350  
 caccagcatc tcacccaactg ccttctcccg ccttcgctac ctggagtcgc 400



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 aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa aaaaaaaaaa 2639

<210> 397  
 <211> 353  
 <212> PRT  
 <213> Homo sapiens

<400> 397  
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 Thr Thr Arg Pro Cys Phe Pro Gly Cys Gln Cys Glu Val Glu Thr  
 20 25 30  
 Phe Gly Leu Phe Asp Ser Phe Ser Leu Thr Arg Val Asp Cys Ser  
 35 40 45  
 Gly Leu Gly Pro His Ile Met Pro Val Pro Ile Pro Leu Asp Thr  
 50 55 60  
 Ala His Leu Asp Leu Ser Ser Asn Arg Leu Glu Met Val Asn Glu  
 65 70 75  
 Ser Val Leu Ala Gly Pro Gly Tyr Thr Thr Leu Ala Gly Leu Asp  
 80 85 90



|   |     |     |     |
|---|-----|-----|-----|
| Leu Ser His Asn Leu Leu Thr Ser Ile Ser Pro Thr Ala Phe Ser | 95  | 100 | 105 |
| Arg Leu Arg Tyr Leu Glu Ser Leu Asp Leu Ser His Asn Gly Leu | 110 | 115 | 120 |
| Thr Ala Leu Pro Ala Glu Ser Phe Thr Ser Ser Pro Leu Ser Asp | 125 | 130 | 135 |
| Val Asn Leu Ser His Asn Gln Leu Arg Glu Val Ser Val Ser Ala | 140 | 145 | 150 |
| Phe Thr Thr His Ser Gln Gly Arg Ala Leu His Val Asp Leu Ser | 155 | 160 | 165 |
| His Asn Leu Ile His Arg Leu Val Pro His Pro Thr Arg Ala Gly | 170 | 175 | 180 |
| Leu Pro Ala Pro Thr Ile Gln Ser Leu Asn Leu Ala Trp Asn Arg | 185 | 190 | 195 |
| Leu His Ala Val Pro Asn Leu Arg Asp Leu Pro Leu Arg Tyr Leu | 200 | 205 | 210 |
| Ser Leu Asp Gly Asn Pro Leu Ala Val Ile Gly Pro Gly Ala Phe | 215 | 220 | 225 |
| Ala Gly Leu Gly Gly Leu Thr His Leu Ser Leu Ala Ser Leu Gln | 230 | 235 | 240 |
| Arg Leu Pro Glu Leu Ala Pro Ser Gly Phe Arg Glu Leu Pro Gly | 245 | 250 | 255 |
| Leu Gln Val Leu Asp Leu Ser Gly Asn Pro Lys Leu Asn Trp Ala | 260 | 265 | 270 |
| Gly Ala Glu Val Phe Ser Gly Leu Ser Ser Leu Gln Glu Leu Asp | 275 | 280 | 285 |
| Leu Ser Gly Thr Asn Leu Val Pro Leu Pro Glu Ala Leu Leu Leu | 290 | 295 | 300 |
| His Leu Pro Ala Leu Gln Ser Val Ser Val Gly Gln Asp Val Arg | 305 | 310 | 315 |
| Cys Arg Arg Leu Val Arg Glu Gly Thr Tyr Pro Arg Arg Pro Gly | 320 | 325 | 330 |
| Ser Ser Pro Lys Val Pro Leu His Cys Val Asp Thr Arg Glu Ser | 335 | 340 | 345 |
| Ala Ala Arg Gly Pro Thr Ile Leu                             | 350 |     |     |

&lt;210&gt; 398

&lt;211&gt; 23

&lt;212&gt; DNA



<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 398

ccctgccagc cgagagcttc acc 23

<210> 399

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 399

ggttggtgcc cgaaagggtcc agc 23

<210> 400

<211> 44

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 400

caacccaag cttactggg caggagctga ggtgttttca ggcc 44

<210> 401

<211> 1571

<212> DNA

<213> Homo sapiens

<400> 401

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atgtcattct ctatctattc actgcaagtg cctgctgttc caggccttac 200

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cgacctgtgc caccaactcg cactcagact ctgaactcag acctgaaatc 300

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tttcaggcct aagatgaaag cctctagtct tgccttcagc cttctctctg 400

ctgcgtttta tctcctatgg actccttcca ctggactgaa gacactcaat 450

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ttctgagata cggggcagtg tgcaagccaa agatggaaac attgacatca 550



gaatcttaag gaggactgag tctttgcaag acacaaagcc tgcgaatcga 600  
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 gatgctctgt gagatatttg aaattgaacc aatgactact taggatgggt 1400  
 tgtggaataa gttttgatgt ggaattgcac atctacctta caattactga 1450  
 ccatccccag tagactcccc agtcccataa ttgtgtatct tccagccagg 1500  
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 ccaaaaaaaaa aaaaaaaaaa a 1571

<210> 402

<211> 261

<212> PRT

<213> Homo sapiens

<400> 402

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
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| Met | Arg | Gln | Phe | Pro | Lys | Thr | Ser | Phe | Asp | Ile | Ser | Pro | Glu | Met |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     | 15  |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Ser | Phe | Ser | Ile | Tyr | Ser | Leu | Gln | Val | Pro | Ala | Val | Pro | Gly | Leu |
|     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |     |
|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
| Thr | Cys | Trp | Ala | Leu | Thr | Ala | Glu | Pro | Gly | Trp | Gly | Gln | Asn | Lys |
|     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |     |



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Gly | Ala | Thr | Thr | Cys | Ala | Thr | Asn | Ser | His | Ser | Asp | Ser | Glu | Leu | 50  | 55  | 60  |
| Arg | Pro | Glu | Ile | Phe | Ser | Ser | Arg | Glu | Ala | Trp | Gln | Phe | Phe | Leu | 65  | 70  | 75  |
| Leu | Leu | Trp | Ser | Pro | Asp | Phe | Arg | Pro | Lys | Met | Lys | Ala | Ser | Ser | 80  | 85  | 90  |
| Leu | Ala | Phe | Ser | Leu | Leu | Ser | Ala | Ala | Phe | Tyr | Leu | Leu | Trp | Thr | 95  | 100 | 105 |
| Pro | Ser | Thr | Gly | Leu | Lys | Thr | Leu | Asn | Leu | Gly | Ser | Cys | Val | Ile | 110 | 115 | 120 |
| Ala | Thr | Asn | Leu | Gln | Glu | Ile | Arg | Asn | Gly | Phe | Ser | Glu | Ile | Arg | 125 | 130 | 135 |
| Gly | Ser | Val | Gln | Ala | Lys | Asp | Gly | Asn | Ile | Asp | Ile | Arg | Ile | Leu | 140 | 145 | 150 |
| Arg | Arg | Thr | Glu | Ser | Leu | Gln | Asp | Thr | Lys | Pro | Ala | Asn | Arg | Cys | 155 | 160 | 165 |
| Cys | Leu | Leu | Arg | His | Leu | Leu | Arg | Leu | Tyr | Leu | Asp | Arg | Val | Phe | 170 | 175 | 180 |
| Lys | Asn | Tyr | Gln | Thr | Pro | Asp | His | Tyr | Thr | Leu | Arg | Lys | Ile | Ser | 185 | 190 | 195 |
| Ser | Leu | Ala | Asn | Ser | Phe | Leu | Thr | Ile | Lys | Lys | Asp | Leu | Arg | Leu | 200 | 205 | 210 |
| Ser | His | Ala | His | Met | Thr | Cys | His | Cys | Gly | Glu | Glu | Ala | Met | Lys | 215 | 220 | 225 |
| Lys | Tyr | Ser | Gln | Ile | Leu | Ser | His | Phe | Glu | Lys | Leu | Glu | Pro | Gln | 230 | 235 | 240 |
| Ala | Ala | Val | Val | Lys | Ala | Leu | Gly | Glu | Leu | Asp | Ile | Leu | Leu | Gln | 245 | 250 | 255 |
| Trp | Met | Glu | Glu | Thr | Glu |     |     |     |     |     |     |     |     |     | 260 |     |     |

&lt;210&gt; 403

&lt;211&gt; 28

&lt;212&gt; DNA

&lt;213&gt; Artificial Sequence

&lt;220&gt;

&lt;223&gt; Synthetic oligonucleotide probe

&lt;400&gt; 403

ctcctgtggt ctccagattt caggccta 28







<210> 406  
 <211> 323  
 <212> PRT  
 <213> Homo sapiens

<400> 406

|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Ser | Val | Pro | Glu | Glu | Glu | Glu | Arg | Leu | Leu | Pro | Leu | Thr | Gln |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Arg | Trp | Pro | Arg | Ala | Ser | Lys | Phe | Leu | Leu | Ser | Gly | Cys | Ala | Ala |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Thr | Val | Ala | Glu | Leu | Ala | Thr | Phe | Pro | Leu | Asp | Leu | Thr | Lys | Thr |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Arg | Leu | Gln | Met | Gln | Gly | Glu | Ala | Ala | Leu | Ala | Arg | Leu | Gly | Asp |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Ala | Arg | Glu | Ser | Ala | Pro | Tyr | Arg | Gly | Met | Val | Arg | Thr | Ala |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Leu | Gly | Ile | Ile | Glu | Glu | Glu | Gly | Phe | Leu | Lys | Leu | Trp | Gln | Gly |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Val | Thr | Pro | Ala | Ile | Tyr | Arg | His | Val | Val | Tyr | Ser | Gly | Gly | Arg |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Met | Val | Thr | Tyr | Glu | His | Leu | Arg | Glu | Val | Val | Phe | Gly | Lys | Ser |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Glu | Asp | Glu | His | Tyr | Pro | Leu | Trp | Lys | Ser | Val | Ile | Gly | Gly | Met |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |
| Met | Ala | Gly | Val | Ile | Gly | Gln | Phe | Leu | Ala | Asn | Pro | Thr | Asp | Leu |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |
| Val | Lys | Val | Gln | Met | Gln | Met | Glu | Gly | Lys | Arg | Lys | Leu | Glu | Gly |
|     |     |     |     | 155 |     |     |     |     | 160 |     |     |     |     | 165 |
| Lys | Pro | Leu | Arg | Phe | Arg | Gly | Val | His | His | Ala | Phe | Ala | Lys | Ile |
|     |     |     |     | 170 |     |     |     |     | 175 |     |     |     |     | 180 |
| Leu | Ala | Glu | Gly | Gly | Ile | Arg | Gly | Leu | Trp | Ala | Gly | Trp | Val | Pro |
|     |     |     |     | 185 |     |     |     |     | 190 |     |     |     |     | 195 |
| Asn | Ile | Gln | Arg | Ala | Ala | Leu | Val | Asn | Met | Gly | Asp | Leu | Thr | Thr |
|     |     |     |     | 200 |     |     |     |     | 205 |     |     |     |     | 210 |
| Tyr | Asp | Thr | Val | Lys | His | Tyr | Leu | Val | Leu | Asn | Thr | Pro | Leu | Glu |
|     |     |     |     | 215 |     |     |     |     | 220 |     |     |     |     | 225 |
| Asp | Asn | Ile | Met | Thr | His | Gly | Leu | Ser | Ser | Leu | Cys | Ser | Gly | Leu |
|     |     |     |     | 230 |     |     |     |     | 235 |     |     |     |     | 240 |
| Val | Ala | Ser | Ile | Leu | Gly | Thr | Pro | Ala | Asp | Val | Ile | Lys | Ser | Arg |
|     |     |     |     | 245 |     |     |     |     | 250 |     |     |     |     | 255 |



Ile Met Asn Gln Pro Arg Asp Lys Gln Gly Arg Gly Leu Leu Tyr  
260 265 270

Lys Ser Ser Thr Asp Cys Leu Ile Gln Ala Val Gln Gly Glu Gly  
275 280 285

Phe Met Ser Leu Tyr Lys Gly Phe Leu Pro Ser Trp Leu Arg Met  
290 295 300

Thr Pro Trp Ser Met Val Phe Trp Leu Thr Tyr Glu Lys Ile Arg  
305 310 315

Glu Met Ser Gly Val Ser Pro Phe  
320

<210> 407  
<211> 31  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 407  
cgcgatccc gttatcgtct tgcgctactg c 31

<210> 408  
<211> 34  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 408  
gcggaattct taaaatggac tgactccact catc 34

<210> 409  
<211> 1487  
<212> DNA  
<213> Homo sapiens

<400> 409  
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tcttgccgcg gcgcctgaag tcggcgtggg cgtttgagga agctgggata 100  
cagcatttaa tgaaaaatth atgcttaaga agtaaaaatg gcaggcttcc 150  
tagataatth tcgttggcca gaatgtgaat gtattgactg gaggtagaga 200  
agaaatgctg tggcatctgt tgcgcaggt atattgtttt ttacaggctg 250  
gtggataatg attgatgcag ctgtggtgta tcctaagcca gaacagttga 300  
accatgcctt tcacacatgt ggtgtattht ccacattggc tttcttcatg 350



|             |             |            |             |             |      |
|-------------|-------------|------------|-------------|-------------|------|
| ataaatgctg  | tatccaatgc  | tcaggtgaga | ggtgatagct  | atgaaagcgg  | 400  |
| ctgttttagga | agaacagggtg | ctcgagtttg | gcttttcatt  | ggtttcatgt  | 450  |
| tgatgtttgg  | gtcacttatt  | gcttccatgt | ggattctttt  | tggtgcatat  | 500  |
| gttaccctaaa | atactgatgt  | ttatccggga | ctagctgtgt  | tttttcaaaa  | 550  |
| tgcaacttata | tttttttagca | ctctgatcta | caaatttgga  | agaaccgaag  | 600  |
| agctatggac  | ctgagatcac  | ttcttaagtc | acattttcct  | tttgttatat  | 650  |
| tctgtttgta  | gataggtttt  | ttatctctca | gtacacattg  | ccaaatggag  | 700  |
| tagattgtac  | attaaatggt  | ttgtttcttt | acatttttat  | gttctgagtt  | 750  |
| ttgaaatagt  | tttatgaaat  | ttctttattt | ttcattgcat  | agactgttaa  | 800  |
| tatgtatata  | atacaagact  | atatgaattg | gataatgagt  | atcagttttt  | 850  |
| tattcctgag  | atttagaact  | tgatctactc | cctgagccag  | ggttacatca  | 900  |
| tcttgtcatt  | ttagaagtaa  | ccactcttgt | ctctctggct  | gggcacgggtg | 950  |
| gctcatgcct  | gtaatcccag  | cactttggga | ggccgaggcg  | ggccgattgc  | 1000 |
| ttgagggtcaa | gtgtttgaga  | ccagcctggc | caacatggcg  | aaacccccatc | 1050 |
| tactaaaaat  | acaaaaatta  | gccaggcatg | gtgggtgggtg | cctgtaatcc  | 1100 |
| cagctacctg  | ggaggctgag  | gcaggagaat | cgcttgaacc  | cgggggggcag | 1150 |
| aggttgcagt  | gagctgagtt  | tgcgccactg | cactctagcc  | tggggggagaa | 1200 |
| agtgaaactc  | cctctcaaaa  | aaaagaccac | tctcagtatc  | tctgatttct  | 1250 |
| gaagatgtac  | aaaaaaatat  | agcttcatat | atctggaatg  | agcactgagc  | 1300 |
| cataaaaagg  | tttcagcaag  | ttgtaactta | ttttggccta  | aaaatgaggt  | 1350 |
| tttttttgga  | aagaaaaaat  | atttgttctt | atgtattgaa  | gaagtgtact  | 1400 |
| tttatataat  | gatttttttaa | atgcccaaag | gactagtttg  | aaagcttctt  | 1450 |
| ttaaaaagaa  | ttcctctaata | atgactttat | gtgagaa     | 1487        |      |

<210> 410

<211> 158

<212> PRT

<213> Homo sapiens

<400> 410

Met Ala Gly Phe Leu Asp Asn Phe Arg Trp Pro Glu Cys Glu Cys  
1 5 10 15

Ile Asp Trp Ser Glu Arg Arg Asn Ala Val Ala Ser Val Val Ala  
20 25 30



|     |     |     |     |     |     |     |     |     |     |     |     |     |     |     |  |
|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|--|
| Gly | Ile | Leu | Phe | Phe | Thr | Gly | Trp | Trp | Ile | Met | Ile | Asp | Ala | Ala |  |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |  |
| Val | Val | Tyr | Pro | Lys | Pro | Glu | Gln | Leu | Asn | His | Ala | Phe | His | Thr |  |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |  |
| Cys | Gly | Val | Phe | Ser | Thr | Leu | Ala | Phe | Phe | Met | Ile | Asn | Ala | Val |  |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |  |
| Ser | Asn | Ala | Gln | Val | Arg | Gly | Asp | Ser | Tyr | Glu | Ser | Gly | Cys | Leu |  |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |  |
| Gly | Arg | Thr | Gly | Ala | Arg | Val | Trp | Leu | Phe | Ile | Gly | Phe | Met | Leu |  |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |  |
| Met | Phe | Gly | Ser | Leu | Ile | Ala | Ser | Met | Trp | Ile | Leu | Phe | Gly | Ala |  |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |  |
| Tyr | Val | Thr | Gln | Asn | Thr | Asp | Val | Tyr | Pro | Gly | Leu | Ala | Val | Phe |  |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |  |
| Phe | Gln | Asn | Ala | Leu | Ile | Phe | Phe | Ser | Thr | Leu | Ile | Tyr | Lys | Phe |  |
|     |     |     |     | 140 |     |     |     |     | 145 |     |     |     |     | 150 |  |
| Gly | Arg | Thr | Glu | Glu | Leu | Trp | Thr |     |     |     |     |     |     |     |  |
|     |     |     |     | 155 |     |     |     |     |     |     |     |     |     |     |  |

<210> 411  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 411  
 gtttgaggaa gctgggatac 20

<210> 412  
 <211> 20  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 412  
 ccaaactcga gcacctgttc 20

<210> 413  
 <211> 40  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe



<400> 413  
atggcaggct tctagataa ttttcgttgg ccagaatgtg 40

<210> 414  
<211> 1337  
<212> DNA  
<213> Homo sapiens

<400> 414  
gttgatggca aacttcctca aaggaggggc agagcctgcg cagggcagga 50  
gcagctggcc cactggcggc ccgcaacct cegtctcacc ctctgggccc 100  
actgcatcta gaggagggcc gtctgtgagg ccactacccc tccagcaact 150  
gggaggtggg actgtcagaa gctggcccag ggtggtggtc agctgggtca 200  
gggacctacg gcacctgctg gaccacctcg ccttctccat cgaagcaggg 250  
aagtgggagc ctgagccct cggttggaag ctgaccccaa gccacccttc 300  
acctggacag gatgagagtg tcaggtgtgc ttgcctcct gccctcatc 350  
tttgccatag tcacgacatg gatgtttatt cgaagctaca tgagcttcag 400  
catgaaaacc atcgtctgc cacgtggct ggcagcctcg cccaccaagg 450  
agatccaggt taaaaagtac aagtgtggcc tcatcaagcc ctgccagcc 500  
aactactttg cgtttaaaat ctgcagtggg gccgccaacg tcgtgggccc 550  
tactatgtgc tttgaagacc gcatgatcat gagtctgtg aaaaacaatg 600  
tgggcagagg cctaaacatc gccctggtga atggaaccac gggagctgtg 650  
ctgggacaga aggcatttga catgtactct ggagatgtta tgcacctagt 700  
gaaattcctt aaagaaattc cggggggtgc actggtgctg gtggcctcct 750  
acgacgatcc agggaccaa atgaacgatg aaagcaggaa actcttctct 800  
gacttgggga gttcctacgc aaaacaactg ggcttcggg acagctgggt 850  
cttcatagga gccaaagacc tcaggggtaa aagcccctt gagcagttct 900  
taaagaacag ccagacaca aacaaatacg agggatggcc agagctgctg 950  
gagatggagg gctgcatgcc ccgaagcca ttttaggtg gctgtggctc 1000  
ttcctcagcc aggggcctga agaagctcct gcctgactta ggagtcagag 1050  
cccggcaggg gctgaggagg aggagcaggg ggtgctgctt ggaaggtgct 1100  
gcaggtcctt gcacgtgtg tcgcgcctct cctcctcgga aacagaacct 1150  
tcccacagca catcctacct ggaagaccag cctcagaggg tccttctgga 1200



accagctgtc tgtggagaga atggggtgct ttcgtcaggg actgctgacg 1250

gctggtcctg aggaaggaca aactgccag acttgagccc aattaaattt 1300

tatttttgct ggttttgaaa aaaaaaaaaa aaaaaaa 1337

<210> 415

<211> 224

<212> PRT

<213> Homo sapiens

<400> 415

Met Arg Val Ser Gly Val Leu Arg Leu Leu Ala Leu Ile Phe Ala  
1 5 10 15

Ile Val Thr Thr Trp Met Phe Ile Arg Ser Tyr Met Ser Phe Ser  
20 25 30

Met Lys Thr Ile Arg Leu Pro Arg Trp Leu Ala Ala Ser Pro Thr  
35 40 45

Lys Glu Ile Gln Val Lys Lys Tyr Lys Cys Gly Leu Ile Lys Pro  
50 55 60

Cys Pro Ala Asn Tyr Phe Ala Phe Lys Ile Cys Ser Gly Ala Ala  
65 70 75

Asn Val Val Gly Pro Thr Met Cys Phe Glu Asp Arg Met Ile Met  
80 85 90

Ser Pro Val Lys Asn Asn Val Gly Arg Gly Leu Asn Ile Ala Leu  
95 100 105

Val Asn Gly Thr Thr Gly Ala Val Leu Gly Gln Lys Ala Phe Asp  
110 115 120

Met Tyr Ser Gly Asp Val Met His Leu Val Lys Phe Leu Lys Glu  
125 130 135

Ile Pro Gly Gly Ala Leu Val Leu Val Ala Ser Tyr Asp Asp Pro  
140 145 150

Gly Thr Lys Met Asn Asp Glu Ser Arg Lys Leu Phe Ser Asp Leu  
155 160 165

Gly Ser Ser Tyr Ala Lys Gln Leu Gly Phe Arg Asp Ser Trp Val  
170 175 180

Phe Ile Gly Ala Lys Asp Leu Arg Gly Lys Ser Pro Phe Glu Gln  
185 190 195

Phe Leu Lys Asn Ser Pro Asp Thr Asn Lys Tyr Glu Gly Trp Pro  
200 205 210

Glu Leu Leu Glu Met Glu Gly Cys Met Pro Pro Lys Pro Phe  
215 220



<210> 416  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 416  
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<210> 417  
 <211> 18  
 <212> DNA  
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<220>  
 <223> Synthetic oligonucleotide probe

<400> 417  
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<210> 418  
 <211> 26  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 418  
 aaagtacaag tgtggcctca tcaagc 26

<210> 419  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence

<220>  
 <223> Synthetic oligonucleotide probe

<400> 419  
 tctgactcct aagtcaggca ggag 24

<210> 420  
 <211> 24  
 <212> DNA  
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<220>  
 <223> Synthetic oligonucleotide probe

<400> 420  
 attctctcca cagacagctg gttc 24

<210> 421



<211> 46  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 421  
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<210> 422  
<211> 1701  
<212> DNA  
<213> Homo sapiens

<220>  
<221> unsure  
<222> 1528  
<223> unknown base

<400> 422  
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cacgccagga gctcgctcgc tctctctctc tctctctcac tctccctcc 200  
ctctctctct gcctgtccta gtcctctagt cctcaaattc ccagtccct 250  
gcaccccttc ctgggacact atgttggtct ccgccctcct gctggagggtg 300  
atttgatcc tggctgcaga tgggggtcaa cactggacgt atgagggcc 350  
acatggtcag gaccattggc cagcctctta ccctgagtgt ggaaacaatg 400  
cccagtcgcc catcgatatt cagacagaca gtgtgacatt tgacctgat 450  
ttgcctgctc tgcagcccca cggatatgac cagcctggca ccgagccttt 500  
ggacctgcac aacaatggcc acacagtgc actctctctg ccctctaccc 550  
tgtatctggg tggacttccc cgaaaatatg tagctgcca gctccacctg 600  
cactgggggtc agaaaggatc ccagggggg tcagaacacc agatcaacag 650  
tgaagccaca tttgcagagc tccacattgt acattatgac tctgattcct 700  
atgacagctt gagtgaggct gctgagaggc ctcaggcct ggctgtcctg 750  
ggcatcctaa ttgaggtggg tgagactaag aatatagctt atgaacacat 800  
tctgagtcac ttgcatgaag tcaggcataa agatcagaag acctcagtgc 850  
ctcccttcaa cctaagagag ctgctcccca aacagctggg gcagtacttc 900



|            |             |            |            |            |      |
|------------|-------------|------------|------------|------------|------|
| cgctacaatg | gctcgcctcac | aactccccct | tgctaccaga | gtgtgctctg | 950  |
| gacagttttt | tatagaaggt  | cccagatttc | aatggaacag | ctggaaaagc | 1000 |
| ttcaggggac | attgttctcc  | acagaagagg | agccctctaa | gcttctggta | 1050 |
| cagaactacc | gagcccttca  | gcctctcaat | cagcgcctgg | tctttgcttc | 1100 |
| tttcatccaa | gcaggatcct  | cgtataccac | aggtgaaatg | ctgagtctag | 1150 |
| gtgtaggaat | cttggttggc  | tgtctctgcc | ttctcctggc | tgtttatttc | 1200 |
| attgctagaa | agattcggaa  | gaagaggctg | gaaaaccgaa | agagtgtggg | 1250 |
| cttcacctca | gcacaagcca  | cgactgaggc | ataaattcct | tctcagatac | 1300 |
| catggatgtg | gatgacttcc  | cttcatgcct | atcaggaagc | ctctaaaatg | 1350 |
| gggtgtagga | tctggccaga  | aacactgtag | gagtagtaag | cagatgtcct | 1400 |
| ccttcccctg | gacatctctt  | agagaggaat | ggaccaggc  | tgtcattcca | 1450 |
| ggaagaactg | cagagccttc  | agcctctcca | aacatgtagg | aggaaatgag | 1500 |
| gaaatcgctg | tgttgttaat  | gcagaganca | aactctgttt | agttgcaggg | 1550 |
| gaagtttggg | atatacccca  | aagtcctcta | ccccctcact | tttatggccc | 1600 |
| tttccctaga | tatactgcgg  | gatctctcct | taggataaag | agttgctgtt | 1650 |
| gaagttgtat | atttttgatc  | aatatatttg | gaaattaaag | tttctgactt | 1700 |
| t          | 1701        |            |            |            |      |

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<210> 423
<211> 337
<212> PRT
<213> Homo sapiens
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<400> 423
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Ala  Asp  Gly  Gly  Gln  His  Trp  Thr  Tyr  Glu  Gly  Pro  His  Gly  Gln
              20              25              30

Asp  His  Trp  Pro  Ala  Ser  Tyr  Pro  Glu  Cys  Gly  Asn  Asn  Ala  Gln
              35              40              45

Ser  Pro  Ile  Asp  Ile  Gln  Thr  Asp  Ser  Val  Thr  Phe  Asp  Pro  Asp
              50              55              60

Leu  Pro  Ala  Leu  Gln  Pro  His  Gly  Tyr  Asp  Gln  Pro  Gly  Thr  Glu
              65              70              75

Pro  Leu  Asp  Leu  His  Asn  Asn  Gly  His  Thr  Val  Gln  Leu  Ser  Leu
              80              85              90

```



|                                     |                         |
|-------------------------------------|-------------------------|
| Pro Ser Thr Leu Tyr Leu Gly Gly Leu | Pro Arg Lys Tyr Val Ala |
| 95                                  | 100 105                 |
| Ala Gln Leu His Leu His Trp Gly Gln | Lys Gly Ser Pro Gly Gly |
| 110                                 | 115 120                 |
| Ser Glu His Gln Ile Asn Ser Glu Ala | Thr Phe Ala Glu Leu His |
| 125                                 | 130 135                 |
| Ile Val His Tyr Asp Ser Asp Ser Tyr | Asp Ser Leu Ser Glu Ala |
| 140                                 | 145 150                 |
| Ala Glu Arg Pro Gln Gly Leu Ala Val | Leu Gly Ile Leu Ile Glu |
| 155                                 | 160 165                 |
| Val Gly Glu Thr Lys Asn Ile Ala Tyr | Glu His Ile Leu Ser His |
| 170                                 | 175 180                 |
| Leu His Glu Val Arg His Lys Asp Gln | Lys Thr Ser Val Pro Pro |
| 185                                 | 190 195                 |
| Phe Asn Leu Arg Glu Leu Leu Pro Lys | Gln Leu Gly Gln Tyr Phe |
| 200                                 | 205 210                 |
| Arg Tyr Asn Gly Ser Leu Thr Thr Pro | Pro Cys Tyr Gln Ser Val |
| 215                                 | 220 225                 |
| Leu Trp Thr Val Phe Tyr Arg Arg Ser | Gln Ile Ser Met Glu Gln |
| 230                                 | 235 240                 |
| Leu Glu Lys Leu Gln Gly Thr Leu Phe | Ser Thr Glu Glu Glu Pro |
| 245                                 | 250 255                 |
| Ser Lys Leu Leu Val Gln Asn Tyr Arg | Ala Leu Gln Pro Leu Asn |
| 260                                 | 265 270                 |
| Gln Arg Met Val Phe Ala Ser Phe Ile | Gln Ala Gly Ser Ser Tyr |
| 275                                 | 280 285                 |
| Thr Thr Gly Glu Met Leu Ser Leu Gly | Val Gly Ile Leu Val Gly |
| 290                                 | 295 300                 |
| Cys Leu Cys Leu Leu Leu Ala Val Tyr | Phe Ile Ala Arg Lys Ile |
| 305                                 | 310 315                 |
| Arg Lys Lys Arg Leu Glu Asn Arg Lys | Ser Val Val Phe Thr Ser |
| 320                                 | 325 330                 |
| Ala Gln Ala Thr Thr Glu Ala         |                         |
| 335                                 |                         |

<210> 424

<211> 18

<212> DNA

<213> Artificial Sequence



<220>  
<223> Synthetic oligonucleotide probe

<400> 424  
gtaaagtcgc tggccagc 18

<210> 425  
<211> 18  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 425  
cccgatctgc ctgctgta 18

<210> 426  
<211> 24  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 426  
ctgcactgta tggccattat tgtg 24

<210> 427  
<211> 45  
<212> DNA  
<213> Artificial Sequence

<220>  
<223> Synthetic oligonucleotide probe

<400> 427  
cagaaaccca tgatacccta ctgaacaccg aatcccctgg aagcc 45

<210> 428  
<211> 1073  
<212> DNA  
<213> Homo sapiens

<400> 428  
aatttttcac cagagtaaac ttgagaaacc aactggacct tgagtattgt 50  
acattttgcc tcgtggaccc aaaggtagca atctgaaaca tgaggagtac 100  
gattctactg ttttgtcttc taggatcaac tcggtcatta ccacagctca 150  
aacctgcttt gggactccct ccacaaaaac tggtccgga tcagggaaca 200  
ctaccaaacc aacagcagtc aaatcaggtc tttccttctt taagtctgat 250  
accattaaca cagatgctca cactggggcc agatctgcat ctgttaaata 300



|             |            |             |             |             |      |
|-------------|------------|-------------|-------------|-------------|------|
| ctgctgcagg  | aatgacacct | ggtaccacaga | cccacccatt  | gaccctggga  | 350  |
| gggttgtaatg | tacaacagca | actgcaccca  | catgtgttac  | caattttttgt | 400  |
| cacacaactt  | ggagcccagg | gcactatcct  | aagctcagag  | gaattgccac  | 450  |
| aaatcttcac  | gagcctcatc | atccattcct  | tgttcccggg  | aggcatcctg  | 500  |
| cccaccagtc  | aggcaggggc | taatccagat  | gtccagggatg | gaagccttcc  | 550  |
| agcaggagga  | gcaggtgtaa | atcctgccac  | ccaggaacc   | ccagcaggcc  | 600  |
| gcctcccaac  | tcccagtggc | acagatgacg  | actttgcagt  | gaccaccctt  | 650  |
| gcaggcatcc  | aaaggagcac | acatgccatc  | gaggaagcca  | ccacagaatc  | 700  |
| agcaaattga  | attcagtaag | ctgtttcaaa  | ttttttcaac  | taagctgcct  | 750  |
| cgaatttggg  | gatacatgtg | aatctttatc  | attgattata  | ttatggaata  | 800  |
| gattgagaca  | cattggatag | tcttagaaga  | aattaattct  | taatttacct  | 850  |
| gaaaatattc  | ttgaaatttc | agaaaatatg  | ttctatgtag  | agaatcccaa  | 900  |
| cttttaaaaa  | caataattca | atggataaat  | ctgtctttga  | aatataacat  | 950  |
| tatgctgcct  | ggatgatatg | catattaaaa  | catatttgga  | aaactggaaa  | 1000 |
| aaaaaaaaaa  | aaaaaaaaaa | aaaaaaaaaa  | aaaaaaaaaa  | aaaaaaaaaa  | 1050 |
| aaaaaaaaaa  | aaaaaaaaaa | aaa         | 1073        |             |      |

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<210> 429
<211> 209
<212> PRT
<213> Homo sapiens
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<400> 429
Met  Arg  Ser  Thr  Ile  Leu  Leu  Phe  Cys  Leu  Leu  Gly  Ser  Thr  Arg
  1          5          10          15

Ser  Leu  Pro  Gln  Leu  Lys  Pro  Ala  Leu  Gly  Leu  Pro  Pro  Thr  Lys
          20          25          30

Leu  Ala  Pro  Asp  Gln  Gly  Thr  Leu  Pro  Asn  Gln  Gln  Gln  Ser  Asn
          35          40          45

Gln  Val  Phe  Pro  Ser  Leu  Ser  Leu  Ile  Pro  Leu  Thr  Gln  Met  Leu
          50          55          60

Thr  Leu  Gly  Pro  Asp  Leu  His  Leu  Leu  Asn  Pro  Ala  Ala  Gly  Met
          65          70          75

Thr  Pro  Gly  Thr  Gln  Thr  His  Pro  Leu  Thr  Leu  Gly  Gly  Leu  Asn
          80          85          90

Val  Gln  Gln  Gln  Leu  His  Pro  His  Val  Leu  Pro  Ile  Phe  Val  Thr

```



|                 | 95                  | 100                 | 105 |
|-----------------|---------------------|---------------------|-----|
| Gln Leu Gly Ala | Gln Gly Thr Ile Leu | Ser Ser Glu Glu Leu | Pro |
|                 | 110                 | 115                 | 120 |
| Gln Ile Phe Thr | Ser Leu Ile Ile His | Ser Leu Phe Pro Gly | Gly |
|                 | 125                 | 130                 | 135 |
| Ile Leu Pro Thr | Ser Gln Ala Gly Ala | Asn Pro Asp Val Gln | Asp |
|                 | 140                 | 145                 | 150 |
| Gly Ser Leu Pro | Ala Gly Gly Ala Gly | Val Asn Pro Ala Thr | Gln |
|                 | 155                 | 160                 | 165 |
| Gly Thr Pro Ala | Gly Arg Leu Pro Thr | Pro Ser Gly Thr Asp | Asp |
|                 | 170                 | 175                 | 180 |
| Asp Phe Ala Val | Thr Thr Pro Ala Gly | Ile Gln Arg Ser Thr | His |
|                 | 185                 | 190                 | 195 |
| Ala Ile Glu Glu | Ala Thr Thr Glu Ser | Ala Asn Gly Ile Gln |     |
|                 | 200                 | 205                 |     |

<210> 430

<211> 1257

<212> DNA

<213> Homo Sapien

<400> 430

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cggagcgcggc cggagccaga cgctgaccac gttcctctcc tcggtctcct 100
ccgcctccag ctccgcgctg cccggcagcc gggagccatg cgaccccagg 150
gccccgcgcg ctccccgcag cggctccgcg gcctcctgct gctcctgctg 200
ctgcagctgc ccgcgcgctc gagcgccctc gagatcccca aggggaagca 250
aaaggcgagc ctccggcaga gggaggtggt ggacctgtat aatggaatgt 300
gcttacaagg gccagcagga gtgcctggtc gagacgggag ccctggggcc 350
aatgttattc cgggtacacc tgggatccca ggtcgggatg gattcaaagg 400
agaaaagggg gaatgtctga gggaaagctt tgaggagtcc tggacaccca 450
actacaagca gtgttcattg agttcattga attatggcat agatcttggg 500
aaaattgcgg agtgtacatt taaaagatg cgttcaaata gtgctctaag 550
agttttgttc agtggctcac ttgggctaaa atgcagaaat gcatgctgtc 600
agcgttggtg ttccacattc aatggagctg aatgttcagg acctcttccc 650
attgaagcta taatttattt ggaccaagga agccctgaaa tgaattcaac 700

```



aattaatatt catcgcaactt cttctgtgga aggactttgt gaaggaattg 750  
gtgctggatt agtggatggt gctatctggg ttggcacttg ttcagattac 800  
ccaaaaggag atgcttctac tggatggaat tcagtttctc gcatcattat 850  
tgaagaacta ccaaaataaa tgctttaatt ttcatttgct acctcttttt 900  
ttattatgcc ttggaatggt tcacttaaat gacattttaa ataagtttat 950  
gtatacatct gaatgaaaag caaagctaaa tatgtttaca gaccaaagtg 1000  
tgatttcaca ctgtttttta atctagcatt attcattttg cttcaatcaa 1050  
aagtggtttc aatatttttt ttagttggtt agaatacttt cttcatagtc 1100  
acattctctc aacctataat ttggaatatt gttgtggtct tttgtttttt 1150  
ctcttagtat agcattttta aaaaaatata aaagctacca atctttgtac 1200  
aatttgtaaa tgtaagaat tttttttata tctgttaaatt aaaaattatt 1250  
tccaaca 1257

<210> 431

<211> 243

<212> PRT

<213> Homo Sapien

<400> 431

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|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| Met | Arg | Pro | Gln | Gly | Pro | Ala | Ala | Ser | Pro | Gln | Arg | Leu | Arg | Gly |
| 1   |     |     |     | 5   |     |     |     |     | 10  |     |     |     |     | 15  |
| Leu | Leu | Leu | Leu | Leu | Leu | Leu | Gln | Leu | Pro | Ala | Pro | Ser | Ser | Ala |
|     |     |     |     | 20  |     |     |     |     | 25  |     |     |     |     | 30  |
| Ser | Glu | Ile | Pro | Lys | Gly | Lys | Gln | Lys | Ala | Gln | Leu | Arg | Gln | Arg |
|     |     |     |     | 35  |     |     |     |     | 40  |     |     |     |     | 45  |
| Glu | Val | Val | Asp | Leu | Tyr | Asn | Gly | Met | Cys | Leu | Gln | Gly | Pro | Ala |
|     |     |     |     | 50  |     |     |     |     | 55  |     |     |     |     | 60  |
| Gly | Val | Pro | Gly | Arg | Asp | Gly | Ser | Pro | Gly | Ala | Asn | Val | Ile | Pro |
|     |     |     |     | 65  |     |     |     |     | 70  |     |     |     |     | 75  |
| Gly | Thr | Pro | Gly | Ile | Pro | Gly | Arg | Asp | Gly | Phe | Lys | Gly | Glu | Lys |
|     |     |     |     | 80  |     |     |     |     | 85  |     |     |     |     | 90  |
| Gly | Glu | Cys | Leu | Arg | Glu | Ser | Phe | Glu | Glu | Ser | Trp | Thr | Pro | Asn |
|     |     |     |     | 95  |     |     |     |     | 100 |     |     |     |     | 105 |
| Tyr | Lys | Gln | Cys | Ser | Trp | Ser | Ser | Leu | Asn | Tyr | Gly | Ile | Asp | Leu |
|     |     |     |     | 110 |     |     |     |     | 115 |     |     |     |     | 120 |
| Gly | Lys | Ile | Ala | Glu | Cys | Thr | Phe | Thr | Lys | Met | Arg | Ser | Asn | Ser |
|     |     |     |     | 125 |     |     |     |     | 130 |     |     |     |     | 135 |



Ala Leu Arg Val Leu Phe Ser Gly Ser Leu Arg Leu Lys Cys Arg  
 140 145 150

Asn Ala Cys Cys Gln Arg Trp Tyr Phe Thr Phe Asn Gly Ala Glu  
 155 160 165

Cys Ser Gly Pro Leu Pro Ile Glu Ala Ile Ile Tyr Leu Asp Gln  
 170 175 180

Gly Ser Pro Glu Met Asn Ser Thr Ile Asn Ile His Arg Thr Ser  
 185 190 195

Ser Val Glu Gly Leu Cys Glu Gly Ile Gly Ala Gly Leu Val Asp  
 200 205 210

Val Ala Ile Trp Val Gly Thr Cys Ser Asp Tyr Pro Lys Gly Asp  
 215 220 225

Ala Ser Thr Gly Trp Asn Ser Val Ser Arg Ile Ile Ile Glu Glu  
 230 235 240

Leu Pro Lys

<210> 432

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 432

aggacttgcc ctcaggaa 18

<210> 433

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 433

cgcaggacag ttgtgaaaat a 21

<210> 434

<211> 21

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 434

atgacgctcg tccaaggcca c 21



<210> 435  
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 <212> DNA  
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 <400> 435  
 cccacctgta ccaccatgt 19  
  
 <210> 436  
 <211> 24  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> Synthetic oligonucleotide probe  
  
 <400> 436  
 actccaggca ccatctgttc tccc 24  
  
 <210> 437  
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 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 437  
 aagggctggc attcaagtc 19  
  
 <210> 438  
 <211> 19  
 <212> DNA  
 <213> Artificial Sequence  
  
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 <223> Synthetic oligonucleotide probe  
  
 <400> 438  
 tgacctggca aaggaagaa 19  
  
 <210> 439  
 <211> 21  
 <212> DNA  
 <213> Artificial Sequence  
  
 <220>  
 <223> Synthetic oligonucleotide probe  
  
 <400> 439  
 cagccaccct ccagtccaag g 21  
  
 <210> 440  
 <211> 19



<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 440  
gggtcgtggt ttggagaga 19

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<210> 441
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 441
ctggccctca gagcaccaat 20
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```
<210> 442
<211> 25
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 442
tcttccatca cttcccctag ctcca 25
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```
<210> 443
<211> 24
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 443
ctggcaggag ttaaagttcc aaga 24
```

```
<210> 444
<211> 18
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 444
aaaggacacc gggatgtg 18
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```
<210> 445
<211> 26
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 445
  agcgtacact ctctccaggc aaccag 26
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```
<210> 446
<211> 22
<212> DNA
<213> Artificial Sequence
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<220>  
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<400> 446
caattctgga tgagggtggta ga 22
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```
<210> 447
<211> 20
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 447
caggactgag cgcttgttta 20
```

```
<210> 448
<211> 21
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 448
    caaagcgcca agtaccggac c 21
```

```
<210> 449
<211> 18
<212> DNA
<213> Artificial Sequence
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<220>  
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<400> 449  
ccagacctca gccaggaa 18

```
<210> 450
<211> 18
<212> DNA
<213> Artificial Sequence
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<223> Synthetic oligonucleotide probe

<400> 450

ccctagctga ccccttca 18

<210> 451

<211> 23

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 451

tctgacaagc agtttttctga atc 23

<210> 452

<211> 26

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 452

ctctccccct cccttttctt ttgttt 26

<210> 453

<211> 18

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 453

ctctggtgcc cacagtga 18

<210> 454

<211> 21

<212> DNA

### <213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 454

ccatgcctgc tcagccaaga a 21

<210> 455

<211> 23

<212> DNA

### <213> Artificial Sequence

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<223> Synthetic oligonucleotide probe



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<400> 455
caggaaatct ggaaacctac agt 23
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```
<210> 456
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<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 456
ccttgaaaag gaccagttt 20
```

```
<210> 457
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<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

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<400> 457
atgagtcgca cctgctgttc cc 22
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```
<210> 458
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<213> Artificial Sequence
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<220>  
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```
<400> 458
tagcagctgc ccttggtta 18
```

```
<210> 459
<211> 22
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 459
aacagcaggt gcgactcatc ta 22
```

```
<210> 460
<211> 23
<212> DNA
<213> Artificial Sequence
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<220>  
<223> Synthetic oligonucleotide probe

```
<400> 460
tgctaggcga cgacacccag acc 23
```



<210> 461  
<211> 18  
<212> DNA  
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<220>  
<223> Synthetic oligonucleotide probe

<400> 461  
tggacacgtg gcagtgga 18

<210> 462  
<211> 19  
<212> DNA  
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<220>  
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<400> 462  
tcatggtctc gtccattc 19

<210> 463  
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<220>  
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<400> 463  
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<210> 464  
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<220>  
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<400> 464  
ccggcatcct tggagtag 18

<210> 465  
<211> 20  
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<220>  
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<400> 465  
tccccattag cacaggagta 20

<210> 466







<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 471

cgagtgtgtg cgaaacctaa 20

<210> 472

<211> 24

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 472

tcagggtcta catcagcctc ctgc 24

<210> 473

<211> 19

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 473

aaggccaagg tgagtccat 19

<210> 474

<211> 20

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 474

cctactgagg agccctatgc 20

<210> 475

<211> 22

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 475

tccaggtgga cccacttca gg 22

<210> 476

<211> 24

<212> DNA

<213> Artificial Sequence



<220>

<223> Synthetic oligonucleotide probe

<400> 476

gggaggctta taggccaat ctgg 24

<210> 477

<211> 50

<212> DNA

<213> Artificial Sequence

<220>

<223> Synthetic oligonucleotide probe

<400> 477

ggcttcagca gcacgtgtga agtcgaagtc gcagtcacag atatcaatga 50

-230-

-1-